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The work of "breaking records" on lake cargoes has already begun, though navigation has so recently opened. The steamer "John W. Gates" left Duluth last week with 7,950 net tons of iron ore, which is said to be the largest cargo ever taken on one keel. On the next trip it is expected that over 8,000 net tons will be loaded. With the cargo actually carried the draft of the vessel was 17 feet forward and 18 feet aft, which is about as much as the present stage of water at certain points on the lakes will permit.

An interesting event to the mining world will be celebrated next week at Eisleben in Germany, where ceremonies will be held in commemoration of the seven hundredth anniversary of the opening of the Mansfeld copper mines, which are still actively worked. These mines antedate by a few years those of the Stora Kopparbarget in Sweden, and are the oldest mines in the world which have been operated continuously, or with only brief interruptions. It is true that the Rio Tinto mines in Spain were worked by the Romans and the lead mines of Laurium in Greece by their Greek owners over 2,000 years ago; but there are gaps of centuries in the history of those mines. Many distinguished men, including the Emperor of Germany, are to be present at Eisleben, and it will be a memorable event.

The consolidation of the Mercur Gold Mining Company and De La Mar's Mercur Mines is an important event in Utah gold mining. The consolidated company will practically control the district, and will have the largest and most complete cyanide plant in the world. This plant—which was described and illustrated in the "Engineering and Mining Journal," December 23d and 30th, 1899—was designed after much testing and experiment, to suit the peculiar low-grade ores of the Mercur District. The union of the two companies—which has been foreshadowed in our Utah correspondence—will be, we believe, of much advantage to both companies. The Mercur has lacked the facilities for economical treatment of the ores, which are now supplied; and the reserve of ore for the supply of the great mill of the De La Mar is largely increased. The cost of building a new mill, which the Mercur Company must soon have undertaken, is saved, and the saving in operating under a single management will doubtless be considerable.

According to the paper read before the Iron and Steel Institute in London recently by M. Adolph Greiner, an abstract of which is given in another column, careful tests of the large blowing engine at Seraing, which is operated by waste gases from the blast furnaces, showed that no less than 30 per cent. of the theoretical heat efficiency was converted into work in the engine. This is an extraordinary result, when we remember that in a perfect steam engine, according to Professor Hubert, we can only attain an efficiency of 12 per cent., while in the ordinary blowing engine the result is often as low as 6 per cent.

The Seraing engine in several test runs developed an average of 575 horse-power, and has shown as much as 725 indicated horse-power when run at high speed. This is not the limit of size, however, for drawings have been made and work is now in progress for an engine for a German blast furnace plant, which is expected to develop at least 1,200 horse-power.

While the Transvaal war is not yet completely at an end, and there may be some fighting yet before we can consider peace as restored, the fact that the British army is in possession of Johannesburg and Pretoria shows that the organized resistance has collapsed, as we indicated last week, and that it will not be long before work at the mines can be begun. In fact, it is said that many of the managers and other officials of the mines are under orders to return to Johannesburg, though it will doubtless be some time yet before the necessities of military occupation will permit the full resumption of operations. Moreover, there is much to be done in clearing up and putting in order the railroad communications and providing against possible raids by the remnant of the Boers who still hold out.

While there has been no time nor opportunity yet to inspect the mines, such reports as have come from the Witwatersrand indicate that their condition is better than might have been expected. Our correspondents from Johannesburg have all along claimed that care has been taken of machinery and other property, and that in the mines which have been operated under Government control the machinery is actually in better order than it was when the agents of the companies left it. In these operated mines no development work has been done and the ore reserves have been largely used up, but no actual damage is reported. A good deal of work will be needed underground before the large mills can be started up.

It is too soon yet to say when gold production from the Witwatersrand mines will be resumed until further and more definite information is at hand.

UNITED STATES MINERAL AND METAL PRODUCTION.

The collection of statistics for "The Mineral Industry," Volume VIII., is now completed and that volume will be in the hands of purchasers at an early date. According to our usual custom, we give herewith the tables showing the total production of minerals and metals in the United States for the year 1899, comparing the statement with the corresponding one for the previous year. We may note here that in the preparation of the statistics for this volume, the figures previously reported for 1898 have been revised in the light of later and more minute investigation, in accordance with the usual practice.

The total value at the place of production of the mineral and metal output of the United States in 1899 was $1,211,361,861, as against $861,751,017 in 1898. These amounts are quite unexampled in the history of the mineral industry. Of this vast sum ores and minerals contributed $580,836,032 in 1899 and $440,997,150 in 1898; metals, $496,057,320 in 1899 and $312,650,587 in 1898; secondary products, $63,996,969 in 1899 and $49,095,010 in 1898; while the value of metals smelted or refined from foreign material was $70,471,540 in 1899 and $59,008,000 in 1898. In these gross totals of value are included certain duplications, such as those of the manganese and iron ore used in making ferromanganese and pig iron; bauxite used in making aluminum and alum; coal used in making coke; lead used in making white and red lead and litharge and a few other duplications, the whole amounting in 1899 to $92,581,031, and in 1898 to $62,232,984. The values of the crude ores or metals smelted or refined here should also be deducted in order to arrive at the net value of the mineral industry of the United States. Deducting the duplications noted above, we find that the total value of the mineral products reported by our mines and reduction works in 1899 was $1,118,780,830, while in 1898 it was $799,518,033; showing an increase last year of no less than $319,262,797, or 39.9 per cent. A part of this gain was due to the large increase in quantities, but a part also to the very general appreciation in values of the minerals and metals included in our output.

In compiling these tables great use has been made of the reports of several State geological surveys, especially those of Alabama, Kansas, Iowa and Montana, and the State mining bureaus of California and Colorado. For the iron and steel industry the very complete figures collected by the American Iron and Steel Association have been used. In great part, however, the figures have been compiled from returns made directly by producers, whose general readiness to aid in the work has done very much toward assuring its completeness.

Taking the leading products of our mineral and metal production in order of their relative importance and value, we find that coal and coke hold the first place, their value constituting 25.4 per cent. of the total; while pig iron is second, its value—including ferro-manganese—being 20.9 per cent. of the total. Copper holds the third place, with 8.3 per cent. of the total. These results would be generally expected; but most people would probably expect to find gold and silver next in importance, and they will be surprised to find that the value of the clay products exceeded that of gold, and amounted to 6.1 per cent. of the total. Gold came fifth in order, its proportion of the whole being 5.8 per cent.; while petroleum was sixth, with 5.3 per cent.; stone seventh, with 3.5 per cent., and silver eighth, with 2.8 per cent. The other important metals are lead, whose value formed 1.6 per cent., and zinc, 1.2 per cent. The latter, however, was exceeded in value by cement, which furnished 1.3 per cent. of the total. No other single product except iron ore, the value of which is duplicated in pig iron, formed as much as 1 per cent. of the entire production, though natural gas reached it very nearly, 0.96 per cent.

PRODUCTION OF ORES AND MINERALS IN THE UNITED STATES. (FIRST PRODUCTS.)

Number.	Products.	Customary Measures.	1898. Quantity. Customary Measures.	1898. Quantity. Metric Tons.	1898. Value at Place of Production. a Totals.	1898. Value at Place of Production. a Per M. Ton.	1899. Quantity. Customary Measures.	1899. Quantity. Metric Tons.	1899. Value at Place of Production. a Totals.	1899. Value at Place of Production. a Per M. Ton.
					$	$			$	$
1	Asbestos	Sh. T.	885	803	13,425	16·72	912	827	13,860	16·76
2	Asphaltum	Sh. T.	25,690	23,306	482,175	20·69	15,060	13,662	308,130	22·55
3	Asphaltic limestone	Sh. T.	14,099	12,791	70,495	5·51	10,378	9,415	54,422	5·78
4	Bitumin's sandstone	Sh. T.	49,536	44,938	146,275	3·26	42,104	40,646	123,229	3·03
5	Barytes	Sh. T.	28,247	25,626	112,988	4·41	32,636	29,607	137,071	4·63
6	Bauxite	L. T.	26,791	27,220	66,978	2·46	36,813	37,402	101,235	2·71
7	Borate of calcium. c	Sh. T.	15,335	13,911	306,700	n22·05	24,068	21,834	505,428	n23·15
8	Bromine	Lb.	486,978	221	136,354	617·19	433,003	196	125,571	640·67
9	Cement, nat. hydraul.	g Bbls	8,161,078	1,110,552	3,819,995	3·44	10,186,447	1,386,163	5,183,500	3·74
10	Cement, Portland	h Bbls	3,584,586	650,383	6,168,106	9·48	5,805,620	1,053,365	10,441,431	9·91
11	Chrome ore	L. T.	100	102	1,000	9·84	100	102	1,000	9·84
12	Clay products				59,379,874				74,064,628	
13	Coal, anthracite	Sh. T.	52,848,605	47,943,940	81,445,937	1·70	60,577,398	54,955,455	103,648,780	1·89
14	Coal, bituminous	Sh. T.	165,435,389	150,082,000	129,039,154	0·86	191,501,350	173,728,885	172,406,679	0·99
15	Coal, cannel	Sh. T.	49,889	45,259	134,700	2·98	36,639	33,239	91,597	2·76
16	Cobalt oxide	Lb.	9,640	k 4,373	15,424	k 3·53	10,200	k 4,627	15,810	k 3·42
17	Copper sulphate. f	Lb.	55,119,361	25,002	m1,879,570	75·18	67,903,370	30,801	m 3,530,975	114·64
18	Corundum	Sh. T.	786	713	63,630	89·24	970	880	78,570	89·28
19	Emery	Sh. T.	2,956	2,682	143,800	53·62	3,000	2,722	150,000	55·11
20	Feldspar	L. T.	21,350	21,692	107,147	4·94	26,968	27,399	137,866	5·03
21	Fluorspar	Sh. T.	12,145	11,018	86,985	7·89	24,030	21,800	152,655	7·00
22	Fullers earth	Sh. T.	15,553	14,110	87,365	6·19	13,620	12,356	81,900	6·63
23	Garnet	Sh. T.	2,882	2,615	82,930	31·71	2,565	2,327	72,672	31·23
24	Grahamite	Sh. T.	2,675	2,427	80,250	n33·07	3,150	2,858	97,650	n34·17
25	Graphite, crystalline	Lb.	1,647,679	k 747,382	82,385	k 0·11	3,632,608	k 1,647,740	145,304	k0·09
26	Graphite, amorphous	Sh. T.	1,200	1,089	11,400	10·47	1,030	934	8,240	8·82
27	Gypsum	Sh. T.	314,865	285,644	864,415	3·03	372,285	337,735	1,109,286	3·28
28	Iron ore	L. T.	20,655,865	20,986,359	37,593,674	1·79	25,341,000	25,746,456	58,284,300	2·26
29	Lepidolite	Sh. T.	5	5	181	36·20	124	112	4,600	41·07
30	Magnesite. c	Sh. T.	2,355	2,136	9,420	4·41	2,000	1,814	7,600	4·19
31	Manganese ore. i	L. T.	187,782	190,787	416,627	2·18	143,256	145,548	306,476	2·10
32	Mica, scrap	Sh. T.	3,529	3,201	o 39,837	12·44	6,917	6,275	o 50,956	8·12
33	Mica, sheet	Lb.	110,918	k 50,317	92,232	k 1·83	97,586	k 44,265	76,926	k 1·74
34	Molybdenite	Sh. T.	8	7	400	57·14	18	16	900	56·25
35	Monazite	Lb.	150,000	68	7,500	110·23	330,000	150	18,480	123·20
36	Natural gas				e10,500,000				e11,500,000	
37	Ocher. p	Sh. T.	41,950	38,057	461,450	n12·13	42,286	38,362	465,146	n12·13
38	Petroleum, crude	g Bbls	55,499,875	7,764,713	44,542,906	5·74	57,234,304	8,007,368	64,143,890	8·01
39	Phosphate rock	L. T.	1,257,645	1,277,767	4,355,025	3·41	1,823,391	1,852,565	7,031,785	3·80
40	Precious stones				e125,000				e 175,000	
41	Pyrites	L. T.	191,160	194,219	589,329	3·03	178,408	181,263	583,323	3·22
42	Salt. q	Bbls	18,756,394	2,382,197	4,753,664	2·00	19,861,948	2,522,610	5,437,941	2·16
43	Silica, brick	M.	33,449		590,254		45,000		850,000	
44	Diatom. earth	Sh. T.	1,392	1,263	11,092	8·71	1,136	1,031	8,216	7·27
45	Flint	Sh. T.	20,593	18,682	47,333	2·53	24,305	22,049	56,481	2·56
46	Sand, etc	L. T.	e 800,000	812,800	e1,178,560	1·45	e 850,000	863,600	e1,338,580	1·55
47	Pumice	Sh. T.	144	131	720	n 5·51	340	308	1,700	n 5·52
48	Grindstones	Sh. T.	38,859	35,253	438,675	12·44	43,959	39,879	501,985	12·59
49	Whetstones				107,990				115,220	
50	Tripoli	Sh. T.	1,865	1,692	3,367	j 1·99	2,102	1,907	4,729	2·48
51	Slate, roofing	Sq'es.	1,041,632	314,888	2,777,996	j 2·67	1,098,374	332,146	3,055,988	j 2·78
52	Manufactures				528,856				540,434	
53	Pigment	Sh. T.	7,886	7,154	70,671	9·88	4,911	4,455	56,388	11·30
54	Soapstone	Sh. T.	18,862	17,111	158,635	9·27	20,011	18,153	180,504	10·44
55	Soda, natural. r	Sh. T.	7,150	6,486	94,650	14·59	10,500	9,526	152,250	15·98
56	Stone, for building				e35,404,900				e38,797,487	
57	Stone, limestone (flux)	L. T.	5,275,819	5,360,232	2,304,900	0·43	6,707,435	6,814,754	3,475,525	0·51
58	Stone, lithographic	Sh. T.	112	102	2,240	n 21·96	40	36	2,000	55·56
59	Strontium sulphate	Sh. T.	2	2	10	n 5·55	*Nil.*	*Nil.*	*Nil.*	*Nil.*
60	Sulphur	L. T.	2,726	2,770	59,754	m21·57	1,565	1,590	38,585	m21·12
61	Sulphuric acid. f.l	Sh. T.	47,558	43,144	970,183	m22·49	59,572	54,043	1,328,456	m24·59
62	Talc, common	Sh. T.	9,112	8,266	78,645	9·51	6,671	6,052	51,763	8·55
63	Talc, fibrous	Sh. T.	54,807	49,721	285,759	5·75	57,120	51,819	272,595	5·26
64	Tungsten ore	L. T.	78·865	80·13	17,398	217·12	168	171	n 33,600	196·49
65	Uranium ore	Sh. T.	33	30	16,500	550·00	43	39	21,500	551·28
66	Wulfenite	Sh. T.	12	11	144	13·09	(b)	(b)	(b)	(b)
67	Zinc sulphate	Sh. T.	145	132	4,640	35·15	528	479	21,648	n 45·19
68	Zinc ore, exported	Sh. T.	11,782	10,688	299,870	28·06	28,220	25,601	725,944	28·36
69	Zinc white. s	Sh. T.	32,747	29,708	2,226,796	74·96	39,663	35,982	3,331,692	92·04
70	Est. prod. unspecified				5,000,000				5,000,000	
	Totals				440,997,150				5c0,836,032	

As might be expected, the most marked gains, both in quantities and values, were shown by fuel and by the materials of construction; though there were also large advances in gold and in other substances. The United States now leads the world as a producer of coal, iron and copper, and in many of the less important metals and minerals.

We give below some condensed notes on the several metals and minerals in 1899. The production of gold, silver and coal was fully commented on in our issue of June 2d.

Metals and Alloys.

Aluminum.—Production of aluminum in the United States in 1899 was 6,500,000 pounds ($2,112,000) against 5,200,000 pounds ($1,690,000) in 1898. The increased price of copper during 1899 caused an increased consumption of aluminum wire for electrical conductors.

Antimony.—The production of metallic antimony in 1899 was 2,500,000 pounds ($241,250) against 2,000,000 pounds ($165,000) in 1898.

Copper.—The production increased from 535,900,232 pounds ($63,129,047) to 581,319,091 pounds ($100,916,994). The main increase was in Arizona. Montana showed a slight increase, while Lake Superior fell off somewhat.

Ferromanganese.—The production of ferromanganese, including spiegeleisen, was 219,768 long tons ($18,350,628) against 213,769 long tons ($10,474,681) in 1898.

Ferromolybdenum.—The production in 1899 was 6,000 pounds ($3,000) against 2,100 pounds ($1,050) in 1898.

Gold and Silver.—The domestic production of gold in 1899 was 3,391,196 troy ounces ($70,096,021) against 3,148,642 troy ounces ($65,082,430) in 1898. The production of silver was 57,126,834 troy ounces ($34,036,168) against 56,755,032 troy ounces ($33,065,482). Besides the production reported, 1,423,349 ounces of gold and 40,542,858 ounces of silver were smelted in the United States from imported ores. The average value of silver in the United States in 1899 was 59.58 cents per ounce against 58.26 cents per ounce in 1898.

Iron.—The production of pig iron in 1899, exclusive of ferromanganese and spiegeleisen was 13,400,735 long tons ($234,725,754) against 11,560,165 long tons ($110,168,732) in 1898. Of the production in 1899, 8,202,778 long tons were Bessemer pig against 7,337,384 long tons in 1898. Basic pig increased from 785,444 to 985,033 long tons. The remainder of the output is classed as foundry and forge iron.

Lead.—The domestic production in 1899 was 217,085 short tons ($19,-

PRODUCTION OF METALS IN THE UNITED STATES.

Number.	Products.	Customary Measures.	1898. Quantity. Custom'ry Measures.	1898. Quantity. Metric Tons.	1898. Value at Place of Production. a Totals.	1898. Value at Place of Production. a Per M. Ton.	1899. Quantity. Custom'ry Measures.	1899. Quantity. Metric Tons.	1899. Value at Place of Production. a Totals.	1899. Value at Place of Production. a Per M. Ton.
					$	$			$	$
71	Aluminum	Lb.	5,200,000	k2,358,705	m1,690,000	k0·72	6,500,000	k2,948,381	m2,112,500	k0·72
72	Antimony	Lb.	2,000,000	907	165,000	181·92	2,500,000	1,137	241,250	212·18
73	Copper	Lb.	535,900,232	243,083	f63,129,047	259·70	581,319,091	263,685	100,916,994	f382·72
74	Ferromang'nese. u	L. T.	213,769	217,189	v10,474,681	48·23	219,768	223,284	v18,350,628	82·19
75	Ferromolybden'm	Lb.	2,100	.....	1,050	1,102·30	6,000	2·7	3,000	1,102·30
76	Gold	Oz.w.	3,148,642	k 97,983	65,082,430	k664·60	3,391,196	k105,471	70,096,021	k664·60
77	Iron, pig	L. T.	11,560,165	11,745,128	v110,168,372	9·38	13,400,735	13,615,350	v234,725 754	17·24
78	Iridium	Oz.w.	8·5	.....	255	.....	5·6	.....	165	.....
79	Lead	Sh. T.	228,475	207,271	m17,272,710	83·33	217,085	196,938	m19,407.399	98·55
80	Molybdenum	Lb.	9,550	k4,332	11,937	k2·76	30,000	k13,608	37,500	k2·76
81	Nickel	Lb.	11,145	k5,055·3	m3,845	k0·76	22,500	k10,505·9	m8,156	k0·80
82	Platinum	Oz.w.	300	k 9·3	3,837	k411·25	*Nil.*	*Nil.*	*Nil.*	*Nil.*
83	Quicksilver x	Fl'sks	30,493	1,058	1,109,945	1,049·09	28,879	993	1,155,160	1,163·30
84	Silver	Oz.	56,755,032	k1,765,265	33,065,482	mk18·73	57,126,834	1,776 829	34,036,168	mk19·16
85	Tungsten	Lb.	33,200	k15,059	43,160	k2·87	e45.000	k20,412	n54,000	k2·87
6	Zinc	Sh. T.	114,104	103,514	10,429,106	m100·75	129,675	117,644	14,912,625	m126·76
	Totals				312,650,857				496,057,320	

SECONDARY MINERAL AND CHEMICAL PRODUCTS OF THE UNITED STATES.

Number.	Products.	Customary Measures.	1898. Quantity. Custom'ry Measures.	1898. Quantity. Metric Tons.	1898. Value at Place of Production. a Totals.	1898. Value at Place of Production. a Per M. Ton.	1899. Quantity. Customary Measures.	1899. Quantity. Metric Tons.	1899. Value at Place of Production. a Totals.	1899. Value at Place of Production. a Per M. Ton.
					$	$			$	$
87	Alum	Sh. T.	18,791	17,047	563,730	m33·07	27,276	24,745	845,556	m34·17
88	Aluminum sulphate	Sh. T.	56,663	51,404	1,416,675	m27·56	81,805	74,213	2,106,479	m28·38
89	Ammonium sulphate	Sh. T.	3,589	3,256	179,450	m55·11	(b)	(b)	(b)	(b)
90	Carborundum	Lb.	1,594,152	723	151,444	209·47	1,741,245	790	156,712	198·37
91	Cement, slag	h Bbls	157,662	98,606	235,721	8·24	244,757	44,408	360,800	8·10
92	Coke	Sh. T.	15,938,556	14,459,363	31,109,680	2·15	18,025,256	16,352,405	42,081,062	2·57
93	Copperas	Sh. T.	11,285	10,238	58,105	5·68	13,770	12,492	108,508	8·69
94	Crushed steel	Sh. T.	330	299	46,200	154·52	337	306	47,350	154·41
95	Graphite, artificial	Lb.	185,647	k84,209	11,603	k0·14	405,870	k18,410	32,475	k0·18
96	Lead, white. z	Sh. T.	93,172	84,525	9,391,738	111·11	103,466	93,864	10,812,197	115·20
97	Lead, red	Sh. T.	9,160	8,310	916,000	110·23	10,199	9,252	1,070,895	115·67
98	Lead, orange miner'l	Sh. T.	653	592	88,937	150·23	928	842	139,200	165·32
99	Litharge	Sh. T.	7,460	6,768	710,196	104·93	10,020	9,090	103,206	113·53
100	Mineral wool	Sh. T.	6,560	5,951	70,314	11·82	7,448	6,757	85,899	12·72
101	Soda, manufact'ed. r	M. T.	.....	340,622	4,080,651	11·98	.....	387,020	5,925,276	15·31
102	Venetian red	Sh. T.	3,270	2,967	64,570	21·70	6,575	5,965	121,519	20·37
	Totals				49,095,010				63,996,969	

METALS PRODUCED FROM FOREIGN ORES AND BULLION. (aa)

Metals.	Customary Measures.	1898. Quantities. Customary Measures.	1898. Quantities. Kg.	1898. Values.	1899. Quantities. Customary Measures.	1899. Quantities. Kg.	1899. Values.
				$			$
Copper	Pounds.	36,055,352	16,354,600	4,247,320	40,650,868	18,443,195	7,058,583
Gold	Troy oz.	1,065,552	33,142	22,024,960	1,423,439	44,274	29,422,691
Lead	Short tons	89,209	80,929,874	6,744,200	76,423	69,330,491	6,832,216
Nickel	Pounds.	7,127,784	3,233,142	2,459,085	8,048,343	3,650,708	2,917,525
Silver	Troy oz.	40,392,095	1,256,325	23,532,435	40,542,858	1,261,014	24,240,575
Total values				59,008,000			70,471,540
Total ores and minerals				$440,997,150			$580,826,032
Total metals				312,650,857			496,057,320
Total secondary products				49,095,010			63,996,969
Grand total, values				$861,751,017			$1,211,361,861

In using the statistics in the foregoing tables reference should also be made to the detailed tables under the respective captions further on in this volume, where many explanatory notes as to the statistics will be found. The following notes refer to the four preceding tables: (a) Except where otherwise specified. (b) Not enumerated. (c) Amount or value of crude mineral. (d) Partly estimated. (e) Estimated. (f) Amount recovered as a by-product. (g) Barrels of 300 lb. (h) Barrels of 400 lb. (i) Includes manganiferous iron ore; this is not duplicated in the report of iron ore. (j) Value per square, i.e., 100 sq. ft., lapped and laid; the weights are calculated on the basis 3 squares = 2,000 lb., but these figures are only approximately correct. (k) Kilograms or per kilogram. (l) Reduced to a basis of 66° B. (m) Average market price at New York. (n) Nominal. (o) Value before grinding. (p) Includes ocher, umber, sienna, and oxide of iron. (q) Includes salt used for the manufacture of alkali; the barrel of salt weighs 280 lb. (r) Reduced to a basis of 58% ash. (s) Includes a small amount made from spelter. (t) Average value of Lake copper at New York, less 0·25c. per lb. (u) Includes spiegeleisen, though the total value is reckoned as if the whole product were ferromanganese. (v) Average market price at Pittsburg. (w) Troy oz. (x) Flasks of 76·5 lb. (y) Barrels of 42 gal. (z) Includes a comparatively small amount made directly from ores. (aa) Not included in the preceding tables.

Abbreviations: Sh. T., short tons (2,000 lb.); L. T., long tons (2,240 lb.); M. T., metric tons (2,204·6 lb),

407,399) against 228,475 short tons ($17,272,710) in 1898. The greater portion of the falling off was due to suspension of operations in Idaho owing to labor difficulties. The average price of lead at New York was 4.47 cents, against 3.78 cents per pound in 1898. Besides the above, the American smelters in 1899 recovered 76,423 tons of lead from foreign ore and base bullion, against 89,209 tons in 1898.

Molybdenum.—Some 30,000 pounds of molybdenum ($37,500) were produced in 1899, against 9,550 pounds ($11,937) in 1898. A considerable portion of the ore came from Arizona.

Nickel.—The domestic production of nickel was 22,500 pounds ($8,156) against 11,145 pounds ($3,845) in 1898.

Platinum.—There was no production of platinum in 1899 against 300 troy ounces ($3,837) in 1898. The value of bar platinum at New York varied from $15 to $18 per ounce against an average of $12.79 in 1898.

Quicksilver.—The production of quicksilver decreased to 28,879 flasks ($1,155,160) from 30,493 flasks ($1,109,945) in 1898. The increased price of quicksilver has caused the reopening of many old California mines, and it is probable that 1900 will show a marked increase in production.

Tungsten.—In all, 45,000 pounds ($54,000) were produced in 1899 against 33,200 pounds ($43,160) in 1898.

Zinc.—The production in 1899 was 129,675 short tons ($14,912,625) against 114,104 short tons ($10,429,106) in 1898. Missouri and Kansas increased their production, while the average price of spelter in New York in 1899 increased to 5.75 cents against 4.57 cents per pound in 1898.

Ores, Minerals and Chemical Products.

Alum and Aluminum Sulphate.—The production of crystallized alum in the United States in 1899 was 27,276 short tons ($845,556) against 18,791 ($563,730) in 1898. The production of aluminum sulphate in 1899 was 81,805 short tons ($2,106,479) against 56,665 ($1,416,675) in 1898.

Ammonium Sulphate.—Statistics for the amount of ammonium sulphate recovered by coke works in 1899 are not available at the time of publication, but the production in 1898 was 3,589 short tons. A larger amount of this substance is obtained from the ammoniacal liquor of illuminating gas works, but there are no statistics as to that production. The value of sulphate, basis 25 per cent., was $58.76 per short ton at New York in 1899, against $50 in 1898.

Asbestos.—The domestic production was 912 short tons ($13,860) in 1899, against 885 short tons ($13,425) in 1898. In each year the production was made almost entirely by one mine in Georgia.

Asphaltum and Asphaltum Products.—The production of asphaltum, liquid and solid, in 1899 was 15,060 short tons ($308,130), against 25,690 ($482.175) in 1898, the entire output each year having been made in California. California and Kentucky, chiefly the former, produced 42,104 short tons ($123,229) of bituminous rock in 1899, against 49,536 ($146,275) in 1898. Utah and the Indian Territory produced 10,378 short tons ($54,422) of asphaltic limestone, against 14,099 ($70,495) in 1898. The output of Utah increased in 1899 and that of the Indian Territory decreased somewhat. The production of grahamite or gilsonite in 1899 was 3,150 short tons, against 2,675 in 1898, the product in 1899 being valued nominally at $31 (in 1898 at $30) per ton at the mines. Colorado produced 150 tons in 1899, the remainder being derived from Utah.

Barytes.—The production in 1899 was 32,636 short tons ($137,071) against 26,791 short tons ($112,988) in 1898. Of the output in 1899 Missouri furnished 17,836 tons, the remainder being obtained in Virginia, North Carolina and Tennessee.

Bauxite.—The production in 1899 was 36,813 long tons ($101,235) against 26,791 ($66,978) in 1897. Of the production in 1899 Georgia furnished 19,619 tons, the remainder being mined in Alabama.

Borate of Calcium.—The production in 1899 was 24,068 short tons, against 15,335 in 1898. Most of this product is colemanite, mined in California.

Bromine.—The production in 1899 was 433,003 pounds ($125,571), against 486,978 ($136,354) in 1898. Of the production in 1899 liquid bromine constituted 307,003 pounds, against 356,978 in 1898, the remainder of the output being the bromine equivalent of potassium bromide produced in Michigan.

Carborundum.—The production reported by the sole producer was 1,741,245 pounds ($156,712) in 1899, against 1,594,152 pounds ($151,444) in 1898. The decline in value was due to the increased proportion of the cheaper grades marketed.

Cement.—The total production of Portland cement in 1899 was 5,805,620 barrels of 400 pounds, valued at $10,441,431, against 3,584,586 ($6,168,106) in 1898. The Lehigh District of Pennsylvania and New Jersey has maintained its supremacy as a center of production, and Michigan, Ohio and other States also showed important gains. There was remarkable prosperity in this industry on account of the increased demand and higher prices. The production of natural rock cement in 1899 was 10,186,447 barrels of 300 pounds, valued at $5,183,500, against 8,161,078 ($3,819,995) in 1898. The increase in the production of natural rock cement was due chiefly to the Indiana-Kentucky district, where the remarkably low prices brought about by excessive competition among the producers undoubtedly stimulated consumption. Other parts of the United States showed an increase, owing to the large amount of construction work in 1899. The production of slag cement in 1898 was 244,751 barrels of 400 pounds, valued at $360,800, against 157,662 ($235,721) in 1898.

Chrome Ore.—The production in 1899 was 100 long tons ($1,000), an amount the same as in the previous year. Chrome mining in California ceased in 1898 and the entire output was derived from Pennsylvania and Maryland.

Clay.—The value of brick and other clay products made in the United States in 1899 was $74,064,628, against $59,379,874 in the previous year.

Coal and Coke.—The total production of coal in the United States in 1899 was 252,115,387 short tons ($276,147,056) against 218,333,833 ($210,619,791) in 1898. The production of anthracite, all of it from Pennsylvania with the exception of an insignificant amount from Colorado, was 60,577,398 short tons ($103,648,780) in 1899, against 52,848,605 ($81,445,937) in 1898. Kentucky produced 36,639 short tons ($91,597) of cannel coal against 49,889 ($134,700) in 1898. The remainder of the output each year was bituminous coal. The total production of coke in 1899 was 18,025,256 short tons ($42,081,002) against 15,938,556 ($31,109,680) in 1898.

Cobalt Oxide.—The production of cobalt oxide in 1899 was 10,200 pounds, against 9,640 in 1898. The value was $1.55 per pound in 1899, against $1.60 in 1898.

Copperas.—The production in 1899 was 13,770 short tons ($108,508) against 11,285 ($58,105) in 1898. The chief producer in this country is the American Steel and Wire Company, which controls all the wire and rod mills recovering copperas as a by-product. The above statistics do not include copperas converted into Venetian and Indian reds at the works of original production.

Copper Sulphate.—The production in 1899 was 67,903,370 pounds, against 55,119,361 in 1898. Of this the amount recovered as a by-product, chiefly by gold and silver refiners, was 37,285,870 pounds in 1899 and 28,061,501 in 1898. The remainder of the output each year was made from metallic copper previously reported in the production of that metal The average value of copper sulphate at New York per 100 pounds was $5.20 in 1899, against $3.41 in 1898.

Corundum and Emery.—The production of corundum in 1899, all of it from North Carolina and Georgia, was 970 short tons ($78,570) against 786 ($63,630) in 1898. The production of emery, most of it from Massachusetts, was 3,000 short tons ($150,000) against 2,956 ($143,800) in 1898. The resources of the United States in both corundum and emery of the highest quality are large and an increasing production is to be looked for. The production of steel emery or crushed steel in 1899 was 674,000 pounds ($47,250) against 660,000 ($46,200) in 1898, the entire make each year being supplied by the Pittsburg Crushed Steel Company.

Feldspar.—The production in 1899 was 26,968 long tons ($137,866) against 21,350 ($107,141) in 1898, Pennsylvania being the chief producer each year.

Fluorspar.—The production in 1899 was 24,030 short tons ($152,655) against 12,145 ($86,985) in 1898, Illinois and Kentucky furnishing the entire output.

Fullers Earth.—The output in 1899 was 13,620 short tons ($81,900) against 15,553 ($87,365) in 1898. The most part each year was mined in the vicinity of Quincy, Fla.

Garnet.—The production in 1899 was 2,565 short tons ($72,672) against 2,882 ($82,930) in 1898, the output each year being furnished by New York, Pennsylvania and Connecticut. The domestic resources of this mineral are large, but the demand for it is limited.

Graphite.—The production of crystalline graphite in 1899 was 3,632,608 pounds ($145,304) against 1,647,679 ($82,385) in 1898. The proportionately large increase in value was due to the increased demand for crucibles for the manufacture of projectiles during the Spanish war. The larger part of the product in 1899 was obtained from Ticonderoga, N. Y., but a considerable quantity was mined in Pennsylvania, where some of the old mines were reopened. The production of amorphous graphite in 1899 was 1,030 tons ($8,240) against 1,200 tons ($11,400) in the previous year. One company produced 405,870 pounds ($32,475) of artificial graphite against 185,647 ($11,603) in 1898.

Gypsum.—The production increased from 314,865 short tons in 1898 to 372,285 in 1899. These figures represent the amount of crude rock quarried. The greater part of the production is marketed as stucco or plaster of Paris.

Iron Ore.—The production in 1899 was 25,341,000 long tons against 20,655,865 in 1898, these figures being exclusive of the production of manganiferous iron ore, reported separately under manganese. The increase in the production was due chiefly to the Lake Superior ranges.

Lead White, Red Lead and Litharge.—The production of white lead in 1899 was 103,466 short tons ($10,812,197) against 93,172 ($9,391,738); of red lead 10,199 ($1,070,895) against 9,160 ($916,000); of litharge 10,020 ($103,206) against 7,460 ($710,192); of orange mineral 928 ($139,200) against 653 ($88,937) in 1898. The most of these products is obtained

by the corrosion of pig lead, but a small part of the white lead product is made directly from ores.

Limestone for Iron Flux.—Iron smelters consumed 6,707,435 long tons in 1899 against 5,275,819 in 1898, the increase being caused by the greater make of pig iron.

Lithographic Stone.—Utah produced 40 short tons in 1899, against 112 in 1898. There was no output in previous years.

Magnesite.—California produced 2,000 short tons ($7,600) in 1899 against 2,355 ($9,420) in the previous year.

Manganese Ore.—The production of manganese ore, including manganiferous iron ore, was 143,256 long tons in 1899 against 187,782 in 1898. Included in these figures are 53,762 tons of manganiferous iron ore from Michigan and Wisconsin in 1899, against 112,318 in 1898, and 53,921 tons of franklinite residuum from New Jersey in 1899, against 47,470 in 1898.

Mica.—The production of sheet mica in 1899 was 97,586 pounds ($76,926) against 110,918 ($92,232) in 1898. The production of scrap mica was 6,917 short tons ($50,956) against 3,529 ($39,837), the values of scrap mica being reckoned for the product before grinding. Practically the entire production of mica is made in South Dakota, New Hampshire and North Carolina.

Mineral Wool.—The production in 1899 was 7,448 short tons ($85,899) against, 6,560 ($70,314) in 1898. A part of this product was made from slag and a part by the fusion of natural rock, the latter being the more valuable.

Molybdenite.—This mineral was produced in the United States in 1899 to the amount of 18 short tons, valued nominally at $50 per ton, against 8 short tons of the same value per ton in 1898.

Monazite.—North Carolina produced 330,000 pounds ($18,480) in 1899 against 150,000 ($7,500) in 1898. Notwithstanding the increase no important future is to be looked for in this industry on account of the vast supplies of cheaper mineral available in Brazil.

Ocher and Oxide of Iron Pigments.—The production of ocher, umber, sienna and natural oxide of iron ground pigment, the last being known commonly as "metallic paint," was 42,286 short tons ($465,146) in 1899 against 41,950 ($461,450) in 1898. The values are reckoned nominally at $11 per ton each year. These products merge into one another so that no satisfactory division of the statistics is possible. Pennsylvania is the largest producer.

Petroleum.—The total output in 1899 was 57,234,304 barrels ($64,143,890) against 55,499,879 ($44,542,906) in 1898. The increase was due to the Appalachian and the Lima fields. California and Texas made increased outputs, while Colorado and Kansas showed a decrease. The above values are calculated for crude oil at the wells. The average was considerably higher in 1899 than in the previous year.

Phosphate Rock.—The production in 1899 was 1,823,391 long tons ($7,031,785) against 1,257,645 ($4,355,025) in 1898. The increase was due especially to Tennessee and the deposits of Florida and South Carolina. Phosphate mining was generally prosperous in 1899 on account of the higher prices.

Salt.—The domestic output of salt increased from 18,756,394 barrels in 1898 to 19,861,948 in 1899, Kansas and New York each contributing largely to the increase.

Silica.—The production of vein and dike quartz in 1899 was 24,305 short tons ($56,481) against 20,593 ($47,333) in 1898. This material was used chiefly in pottery, for packing acid towers, and for grinding for for various purposes. The production of grindstones, which are made out of quartzite, or a very hard sandstone, amounted to 43,959 short tons ($501,985) in 1899 against 38,859 ($438,675) in 1898. These were produced entirely in Ohio and Michigan. The production of oilstones, scythestones and whetstones in 1899 was valued at $115,220 against $107,990 in 1898. Utah produced 340 short tons of pumice stone, valued nominally at $1,700, against 144 ($720) in 1898. There was a production of 2,102 short tons of tripoli, valued at $4,729, against 1,865 ($3,367) in 1898, most of this product being obtained in Missouri. The production of diatomaceous earth in the United States in 1899 was 1,136 short tons ($8,216) against 1,392 ($11,002) in the previous year.

Slate.—The production of roofing slate in 1899 was 1,098,374 squares ($3,055,988) against 1,041,632 ($2,777,996) in 1898. The production of slate manufactures, chiefly blackboards and structural material, was valued at $540,434 in 1899, against $528,856 in 1898. The production of slate pigment, including Baraga graphite and various kinds of mineral black, was 4,911 short tons, against 7,886 in the previous year, the values of the products after grinding being respectively $50,338 and $70,671.

Soda.—The production of soda and soda products from salt, reduced to a common basis of 58 per cent. soda ash, was 387,020 metric tons in 1899, against 340,632 in 1898. The average value of 58 per cent. ash at the works was $15.31 per metric ton in 1899 against $11.98 in 1898. California and Nevada produced 10,500 short tons ($152,250) of natural soda, basis 58 per cent. in 1899, against 7,150 short tons ($94,650) in 1898.

Strontium Sulphate.—There was no production of strontium sulphate in 1899, against 2 tons produced in Ohio in 1898 for experimental purposes.

Sulphur and Pyrites.—Louisiana, Nevada and Utah produced 1,565 long tons of sulphur in 1899 against 2,726 in 1898. The average price of Sicilian seconds at New York was $21.46 per ton, against $21.92 in the previous year. The domestic production of pyrites in 1899 was 178,408 long tons worth on an average $3.27 per ton, against 191,160, averaging $3.08 per ton in 1898. Virginia was the largest producer each year, Massachusetts ranking second. Sulphuric acid was recovered as a by-product in roasting blende and pyrites, chiefly the former, to the extent of 59,572 short tons against 47,558 in 1898, the figures being reduced to a common basis of 66° B. Concentrated acid of the latter strength averaged $22.25 per 2,000 pounds at New York in 1899 against $21.40 in 1898.

Talc and Soapstone.—The production of soapstone for slabs and other manufactured articles in 1899 was 20,011 short tons ($189,504), against 18,862 ($158,635) in 1898. The increase in value was due to general conditions of prosperity. The production of common talc, mostly ground to powder, was 6,671 short tons ($51,763), against 9,112 ($78,645) in 1898. This was produced chiefly in North Carolina, Pennsylvania and Vermont. The production of fibrous talc, all of it from St. Lawrence County, N. Y., was 57,120 short tons ($272,595), against 54,807 ($285,759) in 1898.

Tungsten Ore.—There was a production in 1899 of 168 long tons of tungsten ore from South Dakota, Colorado, Arizona and New Mexico with a small amount from Connecticut, which was valued nominally at $33,600 at the mines. The statistics for 1898 were approximately 79 long tons, valued at $17,398.

Uranium Ore.—Colorado produced 43 short tons, valued at $551.28 per ton, in 1899, against 33 short tons, valued at $500 per ton, in 1898.

Venetian Red.—The production of Venetian and Indian reds in 1899 was 6,575 short tons ($121,519), against 3,270 ($64,570) in 1898. These figures include only the output at works where the original copperas was made, and do not include any that may have been made by second hands.

Wulfenite.—Arizona shipped 12 short tons of this mineral, valued at $12 per ton, in 1898. There was no output reported in 1899.

Zinc Ore.—The amount of zinc ore of domestic origin exported from the United States in 1899 was 28,220 short tons ($725,944), against 11,782 ($299,870) in the previous year. Most of the ore exported was mined in New Jersey.

Zinc Sulphate.—There was a production in 1899, by one concern, of 528 short tons, against 145 in 1898.

Zinc White.—The production in 1899 was 39,663 short tons, against 32,747 in 1898. The total value was $3,331,692, against $2,226,796 in 1898. Nearly all the American production of zinc white is made directly from ores, most of it from ores mined in New Jersey.

THE RED ASH COAL MINE EXPLOSION.

The Red Ash Mine accident, which occurred in West Virginia in March last, and in which 46 persons were killed, is clearly explained in the report of State Mine Inspector J. W. Paul, which is given on another page. From his statement it appears plainly that it comes under the head of those accidents which are the cumulative result of several apparently slight acts of negligence. The mine was fairly well ventilated, and so far as the company operating it is concerned the only serious fault in its equipment was the absence of any provision for wetting the gangways to lay the dust. The disaster was not a dust explosion, it is true, but one of gas, but there is little doubt from Mr. Paul's report that the dust aided materially in spreading the explosion and adding to its force. There would have been an explosion had the mine been wet, but probably it would have been much less disastrous in its results.

The various incidents which preceded the accident show a loose state of discipline and a disregard of the mine regulations which is not very creditable. The rules forbade the miners to enter the headings until the fire-boss had completed his rounds; but on this occasion they decided not to wait, although the fire-boss was known to be in the mine. The ventilating fan was of sufficient capacity, but there was general uncertainty as to whose business it might be to see that it was started up at the proper time. A miner on leaving work the previous evening had left open an air door, which it was his duty to close. Possibly there were some other acts of commission or omission which will never be known. Now it is not probable that all this carelessness and disregard of precaution had occurred on the day of the explosion for the first time. The fact that they did occur and that in conjunction they caused a disastrous explosion, is pretty strong evidence that such things were common in the mine, although they had never before occurred under just the right conditions to make trouble. They go to prove that there was a general disregard of rules and an absence of the close watch of details which is always required in a fiery mine. Perhaps the wonder is not that the explosion occurred, but rather that it did not occur sooner.

Mr. Paul calls attention to the insufficiency of the present mining law of the State, which was passed at a time when few or none of the mines could be called fiery, to provide for conditions which have arisen as mining operations have been extended. His suggestions are practical and useful, and it is to be hoped that the Legislature will heed them. We

must still adhere to the opinion which we have often expressed, that the most effectual protective law would be one strictly enforcing the liability of mine-owners and operators to damages in all cases of death or injury, their only defense to be found in direct and positive proof of contributory negligence on the part of the sufferer for whom such damages may be claimed.

A point to which attention is called in the report, and of which we do not remember any previous mention, is that the use of machines in mining is accompanied by a marked increase in the quantity of dust to be found in a mine. This can, of course, be met by proper arrangements for sprinkling or wetting; but it is a point which should be borne in mind.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Report on the Mines of the Province of Quebec for the Year 1899." By J. Obalski, Inspector of Mines. Montreal; Provincial Printer. Pages, 52.

"Ungarisches Statistisches Jahrbuch." New Series, Volume VI. Prepared under direction of the Minister of Industry. Budapest, Hungary; Athenaeum Press. Pages, 396.

"Annual Report of the City Engineer of the City of Providence, Rhode Island, for the year 1899." Otis F. Clapp, City Engineer. Providence, R. I.; printed for the City. Pages, 82; illustrated.

"Annual Report of the City Engineer of the City of Minneapolis for the Year Ending December 31st, 1899." G. W. Sublette, City Engineer. Minneapolis, Minn.; printed for the City. Pages, 120; with maps and illustrations.

CARBORUNDUM MANUFACTURE AND THE COWLES ELECTRIC SMELTING PATENTS.

The United States Circuit Court of Appeals for the Third Circuit, sitting in Philadelphia, has given its decision—as briefly noted last week—in the case of the Electric Smelting and Aluminum Company against the Carborundum Company. The case was before the court on appeal from the Circuit Court for the Western District of Pennsylvania and involved the question whether the process used in the manufacture of carborundum was an infringement of United States patents Nos. 319,795 and 319,945, issued to Eugene H. Cowles and Alfred H. Cowles, and No. 335,058, issued to Alfred H. Cowles. The Circuit Court dismissed the plaintiff's suit, but the Court of Appeals has now reversed that decision, and ordered a decree to be entered for complainant, thus establishing the claim. There can be no appeal from this decision unless by special permission of the United States Supreme Court; and such permission is only given under special conditions.

The main reliance of the Cowles Company was on process patent No. 319,795, the claims of which are as follows:

"1. The method of generating heat for metallurgical operations herein described, which consists in passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore to be treated by the process being brought into contact with the broken or pulverized resistance material, whereby the heat is generated by the resistance of the broken or pulverized body throughout its mass, and the operation can be performed solely by means of electrical energy.

"2. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of carbon to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized material, whereby the ore is reduced by the combined action of the carbon and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass.

"3. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in pulverizing the ore and mixing with it pulverized or broken carbon or like material, then introducing the mixed ore and carbon within an electric circuit, of which it forms a continuous part, the said circuit being established through the carbon constituents of the mass, whereby the heat is generated by the electrical resistance of the carbon throughout the mass, and the operation can be performed entirely by means of the carbon reagent and the electric energy.

"4. The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of a reducing agent to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material, whereby the ore is reduced by the combined action of the reducing agent and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass."

In its decision the court carefully reviews these specifications and analyzes their meaning. It also takes up the claims of the appellees that the Cowles patents had been forestalled by others. In this respect the chief reliance was on the Ball & Guest patent granted in 1881—No. 236,478—and of this the opinion of the Court of Appeals says: "The Ball & Guest patent was cited in the Patent Office against the application of the Messrs. Cowles, but was decided not to negative their right to a monopoly in the subject matter of their claims as finally allowed. There can be no doubt on the evidence that prior to the process patent in suit metallurgical operations had been performed through the instrumentality of the electric arc, electrical conductors consisting of wires or rods of metals, or of other solid or concrete bodies, or by electrolysis. But on careful examination we have failed to find any patent, publication, or other matter alleged as an anticipation, or as showing the prior art, a practical process for metallurgical or analagous operations involving the use of a discrete body of conductive, but resistant material rendered incandescent by the passage of an electric current, and mixed or otherwise in contact with the material to be treated. This is the broad, underlying idea of the process patent in suit, and is well covered by its claims. The Messrs. Cowles were the first to invent and use this process, and the patent must be sustained. It is a meritorious one, and its claims are entitled to considerable liberality of construction."

The decision further reviews the patents under which the Carborundum Company has been making carborundum—No. 492,767 and Reissue No. 11,473—and holds that in the reissue there is found "the clearest recognition that carborundum may be produced with or without the use of a core of resistance material. It is true that the appellee in practice has adopted a central core as the best method of conducting its process, and that the appellant had adopted a mixture without a central core. . . . But the use of the central core of resistance material is within the process of the appellant under claims 1, 2, and 4."

The concluding portion of the opinion is as follows: "It has been urged that the object of the process patent in suit is reduction, while that of the appellee is composition. But the first and essential step of its process of the appellee involves reduction. The oxide of silicon is necessarily reduced before atoms of silicon can be united with atoms of carbon and form carborundum. The manufacture of carborundum as carried on by the appellee necessarily includes the practice of the broad process of the appellant; and infringement of the patent in suit is not avoided by the fact that after the reduction of the oxide of silicon the atoms of that metalloid unite with those of carbon to form carborundum. Much has been said on the subject of electrolysis. The appellee claims that its process is not electrolytic, while the process covered by claim 3 of the process patent in suit is. We think that while there may be some electrolytic action in the latter, it is merely incidental to the process and does not in any manner constitute its distinguishing feature, which is the transmission of heat to the material to be treated from granular or pulverized resistance material rendered incandescent by the passage of the electric current. But whether the process as conducted under claim 3 does or does not involve electrolysis to a limited degree becomes a wholly immaterial inquiry in view of the fact that claims 1, 2, and 4 cover methods of process to which electrolytic action can no more be attributed than it can to the appellee's process. We shall not further pursue this branch of the case. We are satisfied that the appellee has infringed claims 1, 2, and 4 of the process patent in suit.

"The apparatus patent in suit, No. 319,945, contains seven claims. The charge of infringement with respect to this patent must, in view of notice by the counsel for the appellant, during the taking of the evidence, that reliance was placed on claims 1 and 2, and not on the remaining claims, be treated as confined to those two claims. They are as follows:

" '1. In an electric smelting or reducing apparatus a chamber or casing having its longest dimension in a horizontal direction, and adapted to contain a charge of ore and electrical resistance material previously pulverized and mixed together, the oppositely located electrodes in conductive relation to the charge, but otherwise insulated from one another, and an exit for the escape of the gases and vapors evolved from the charge during the process of reduction, substantially as herein set forth.

" '2. In an electric smelting or reducing apparatus the smelting chamber formed of side and bottom walls of closely packed pulverized or granular material and the permeable top wall formed of a layer of granular non-heat-conducting material, and the electrodes oppositely located at the ends of the core or smelting chamber, substantially as herein set forth.'

"We do not find any anticipation of the apparatus patent or anything to affect its validity. The question is solely one of infringement of claims 1 and 2. While the process of producing carborundum as practiced by the appellee infringes claims 1, 2, and 4 of the process patent in suit, we do not think that the appellee has infringed either the first or the second claim of the apparatus patent in suit. These two claims read in the light of the specification evidently relate to apparatus adapted to the carrying on of the appellant's process in the usual and preferable manner, where the resistance material and material to be treated are intermingled and not otherwise in contact. We therefore hold that the appellee has infringed claims 1, 2, and 4 of the process patent in suit, but has not infringed either claim 1 or claim 2 of the apparatus patent in suit.

"The decree of the Circuit Court is reversed with directions to enter a decree for the complainant in accordance with this opinion but without costs, heretofore incurred, to either party."

PROTECTING STEAM PIPES.—Good results have been obtained in France in protecting steam pipes from loss of heat by sifted saw-dust made into the consistency of mortar. Generally spoiled rye flour is used as the paste or binder. A coating of coal tar is generally used on the outside.

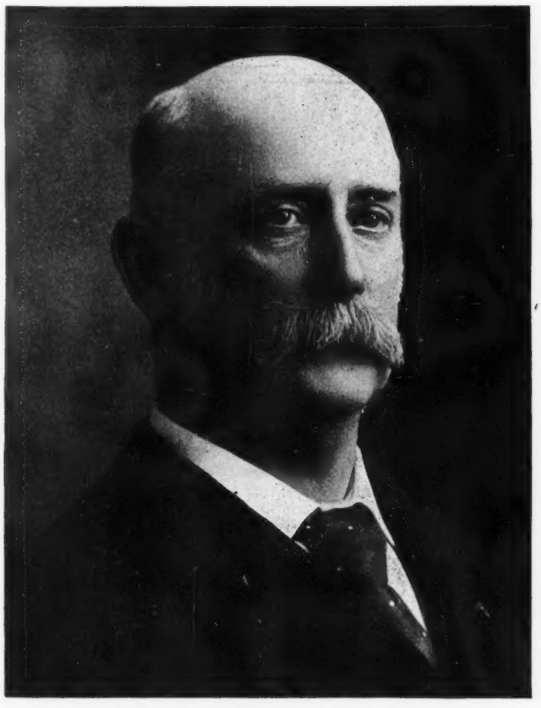
THE BESSEMER MEDAL FOR 1900.—The Bessemer Gold Medal for 1900 has been awarded by the Council of the Iron and Steel Institute to Mr. Henri de Wendel, President of the Comite des Forges de France, who has carried out extensive and valuable investigations as to the use of phosphoric iron ores.

A NEW BRIQUETTE MAKING PROCESS.—The London "Colliery Guardian" says that in a method for making briquettes patented by Herr C. Fiedler, of Munich, Germany, damp small coal is mixed with about 10 per cent. of sulphite cellulose lye, about 2 per cent. of blood and about 1 per cent. of lime water, this mixture being pressed cold in any manner preferred.

JAMES E. SCHWARTZ.

James E. Schwartz, whose death in Dresden, Germany, on May 16th, has already been briefly noticed in our columns, was for over 25 years prominent in the smelting industry, in which he introduced many improvements. He was born in Allegheny, Pa., in 1843, and after his school course received a business training with his father, who was engaged in the white lead business and also in the drug trade. About 1872 the firms with which his father had been connected were dissolved, and Mr. Schwartz sold out his interest in the white lead business of Fahnestock, Hazlett & Schwartz and the wholesale drug trade of B. A. Fahnestock & Company. He then started in the business which he carried on for so long, that of smelting lead and refining lead, silver and gold. Soon afterwards, recognizing the need of a Western connection, he bought the property of the Mingo Furnace Company in Salt Lake, Utah, and organized the Pennsylvania Smelting Company, of which he was the president.

From this time forward his attention was given to his smelting business in Pittsburg and Salt Lake. As already noted, he introduced many improvements and became well known as a master of the business. In the commercial world also he was well known and highly esteemed. In January, 1897, an apoplectic attack compelled him to retire from active work for a time. In 1899 the smelter in Utah and the refinery in Pittsburg were sold to the American Smelting and Refining Company, though



JAMES E. SCHWARTZ.

the organization of the old company is still maintained. Previous to the sale the Pennsylvania Lead Company was doing a business of about $10,000,000 a year.

Mr. Schwartz engaged in some other enterprises and was for several years president of the Pittsburg, Chartiers & Youghiogheny Railroad Company. He found time to interest himself in historical studies and had gathered a valuable library containing many books on American —and especially Pennsylvania—history and archaeology. He was an active member of the Historical Societies of Pennsylvania and Western Pennsylvania, and of the Pennsylvania German Society. He served in the army during the Civil War and was a member of the Loyal Legion and the Society of the Army of the Potomac. He took an interest also in music and athletic sports, and gave active assistance to many movements in the public interest.

RUSSIAN OIL PRODUCTION.—The production of crude petroleum in the Baku Oil District in Russia in March was 46,777,458 poods, or 766,215 metric tons. This included 4,492,105 poods (73,581 tons) used in the district for fuel purposes.

A HIGH TEMPERATURE THERMOMETER.—The London "Engineer" says that a mercury thermometer for high temperatures has been designed in Germany. It consists of a small cylindrical receiver of steel closed at one end. At this end a capillary tube of steel ¼ mm. internal diameter is connected. This tube can be made of any length up to 50 yards, so that the indications of the instrument can be seen at a considerable distance from the place of which the temperature is required to be known. The capillary tube is connected to another small flattened tube which is wound in the form of a spiral. The whole of these tubes and the cavity are completely filled with mercury. The heating of the small cylindrical receiver then causes the spiral to dilate and to untwist. One end of the spiral being held and the other fixed to a suitable gearing, the indication of the temperature can be given on a dial which can be seen for a considerable distance.

THE TRANSVAAL MINING INDUSTRY DURING THE WAR.—IX.*

Special Correspondence of the Engineering and Mining Journal.

(Continued from Page 616.)

About April 1st the Transvaal Government made a loan of £500,000 to the Orange Free State. The Government made an exchange of coined sovereigns for an equal amount of gold bullion with the banks. The refining works, under charge of Mr. Bettel, was in good order at that time and was regularly delivering to the Pretoria Mint gold of sufficient fineness for coinage.

At this time it must be admitted that the machinery at the mines is not in good order, and has been more or less injured by carelessness and improper management. Much of this has been due to the English workmen who still remained on the Rand, and whose attitude and actions expressed as much opposition to the Government as they dared to show.

As to the general condition of property, a police organization was adopted after the war began. Johannesburg was divided into wards and special police were appointed from the residents of each ward. In the districts chiefly inhabited by Uitlanders, the police was composed mainly of Uitlanders—other than English—and they were allowed to carry revolvers and clubs. In the burgher districts, those inhabited chiefly by Dutch, the specials were burghers, generally old or partly disabled men. They carried rifles as well as small arms. There were not officers enough to control and discipline this police, as nearly all the burghers fitted for offices were with the commandoes in the field. Many of the Uitlanders were worthless fellows, and being armed with some authority and free from supervision, they did much damage. Empty houses were broken into and robbed, much property being wantonly destroyed also. It was an easy matter for the policemen, who usually patrolled in couples, to report in the morning that they had found certain houses broken into, but had not been able to catch the thieves; and that was usually the end of the matter. In the Dutch districts there was little or none of this robbery. The Dutch are generally a quiet people and have respect for the property of others.

Practically no Americans remained in Johannesburg. Nearly all the Americans here held positions of some prominence; they were managers, superintendents, mining and mechanical engineers, chemists, assayers and foremen. They all left at the beginning of the war. Whatever their personal opinions might be as to the war, their interests were with the companies which employed them, and which were under British control. A very few are at the mines where pumping is allowed, in charge of pumps or other machinery.

With regard to the operating mines there was no difficulty in getting experienced workmen, as many remained on the Rand and were glad to find something to do. The trouble has been that many had no sense of responsibility and exercised no care in the management of the machinery under their charge. They had no sympathy with the Government, and regarded their positions as temporary only.

Much mischief was done by certain parties who seemed to pass their time in spreading all sorts of rumors, and several of these narrowly escaped prosecution for treason. You have probably heard that all the courts were suspended for the time, the Witwatersrand being placed under martial law, with the commandant of the district as the supreme authority, subject only to the Government at Pretoria. Nevertheless, much leniency was shown to the Uitlanders remaining. One incident of this martial law was that no one in Johannesburg or the neighboring towns was allowed to go about at night without a special pass or night permit.

About the end of March formal notice was given that those companies which had closed their mines or mills would not be allowed to reopen the mines or start up the mills without special permission from the Government.

The official report of the Minister of Mines showed that the total production of the working mines for the month of February was 75,136 oz. This production, at the usual rates for Transvaal gold, would be equal to 61,612 oz. fine, or $1,273,520. The outputs of the several mines are shown below, in ounces:

1. Bonanza	9,706	8. Rose Deep	7,024
2. Crown Reef	7,334	9. Village Main Reef	9,745
3. Ferreira	5,889	10. Wimmer	6,109
4. Ferreira Deep	10,209	11. Worcester	1,140
5. Geldenhuis Estate	2,476		
6. Langlaagte Deep	2,680	Total	75,136
7. Robinson	12,824		

In previous letters it was stated that there were 10 mines in operation. The number was increased to 11 in February, by the starting up of the Geldenhuis Estate and Gold Mining Company, the production of whose mill is included in the table. During March the Crown Reef Gold Mining Company closed down, the ore on the dump having been worked up. This stoppage was noted in the previous letter. The number of working mines was, therefore, reduced to 10 again.

(To be Continued.)

NEW SLAG CARRIERS.—The work of excavation for a new slag carrier is in progress at the Cambria Steel Company's No. 6 furnace, Johnstown, Pa. The new carrier is an arrangement of buckets or receptacles for the slag on an endless chain or cable. This chain extends from the furnace to the railroad track, the distance at No. 6 furnace being about 148 ft. As the cinders come from the furnace they drop into the moving buckets and are conveyed up a slightly inclined plane until the arrangement of the cable causes the buckets to dump their contents into a car standing on tracks beneath. It is arranged that a stream of water is always falling into the cinder receptacles, which sufficiently cools the red-hot contents before the cars are reached that there is no danger of igniting wooden cars, and they can be used just as well as iron ones.

*Previous papers in this series have appeared in the "Engineering and Mining Journal," March 10th, 1900, page 287; March 17th, page 317; March 24th, page 347; March 31st, page 377; April 7th, page 436; April 28th, page 496; May 5th, page 531; May 26th, page 616.

THE NACOSARI MINES, MEXICO.

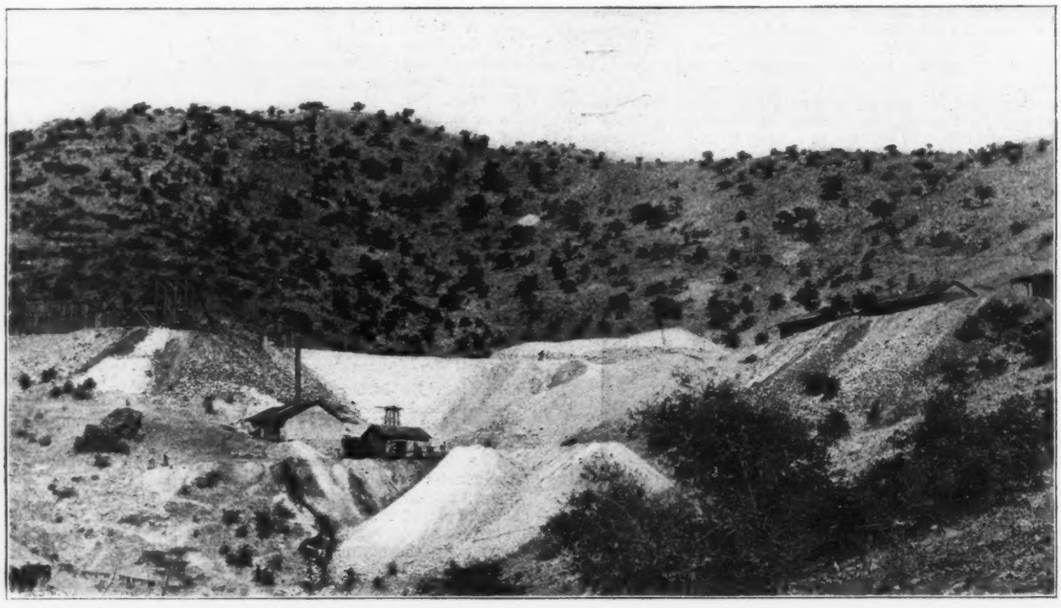
Written for the Engineering and Mining Journal by H. B. Layton.

The development of the Great Pilares copper mine, Nacosari, in Sonora, Mexico, and the construction of big concentrating, smelting and converting plants have been accomplished under conditions which, considering the size of the undertaking, would have been prohibitive to less determined operators. The owner of the property is the Moctezuma Copper Company, otherwise Phelps, Dodge & Company of New York. It may be said the enterprise was never from the beginning an experiment. From the time, nearly three years ago, when Prof. James Douglas, president of the company, and Prof. A. H. Ricketts, geologist and metallurgist for the company, examined the mine, they knew the subsequent expense was justified. Their original plans, with unimportant modifications, have been worked out, and are practically complete.

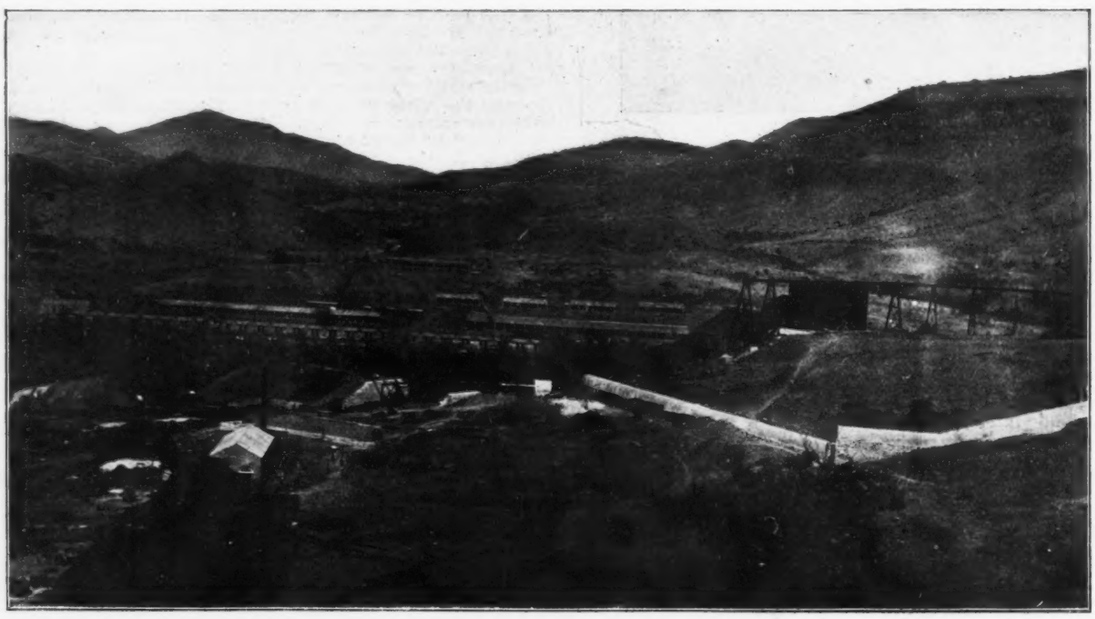
The property comprehends the Pilares Mine, with more than three miles of underground work down to the sixth level, that blocks out and discloses nearly or quite 2,500,000 tons of sulphide ore; eight miles of mine and surface railway, an inclined plane, complete reduction plant, a modern town, and a railroad nearly 100 miles long that will bring it all within immediate reach of the transportation lines of the United States. Complete, the investment will represent considerably more than $3,000,000 American money.

The property is situated 98 miles south of Bisbee, Ariz., in the western spurs of the Sierra Madres. The town of Nacosari is in a valley through which flows a small stream, the Nacosari River, a tributary of the Yaqui. The reduction plant is south of this stream. The elevation of the town site is 4,000 ft. above sea level. Six miles eastward and more than 1,200 ft. higher, is Pilares Mountain, in which lies the great body of ore. Topographically the mountain is rugged and steep, and great pillars of rock protrude above its crest, giving it the name of "Pilares." The ore body lies in an eruptive belt of trachyte in birds-eye porphyry formation, capped with breccia, with perhaps trachyte as a binder. This belt may be traced in a southeasterly direction a distance of 3 miles to the Belle Union, another of the company's mines that has been only slightly prospected. Three miles west granite comes to the surface of mountains that extend north and south. The ore is chalcopyrite and silicious rock, although the surface ore contains considerable black oxide of copper. The constituents of the average ore as analyzed by Daniel Huff, the mine surveyor, shows: Silica, 45.5; alumina, 24.82; iron, 8.5; copper, 8.0; sulphur, 12.25; lime, 0.63; magnesia, 0.30.

When work in progress is completed all the ore in and above the sixth level will be run to the mill by gravity. At present, however, the underground workings and the system of extracting ore, stoping, etc., are as follows: The perpendicular work consists of a main 3-compartment shaft, equipped with steel safety cages. Two of the cages are operated by a 25 H.P. double-cylinder vertical Union gasoline engine, with two-compartment type drum, that lifts 1½ tons 165 ft. per minute, and at the same time lowers the other cage. The other cage is operated by a horizontal Otto engine and is at present used in sinking



SURFACE WORKINGS PILARES MINE, NACOSARI, MEXICO.



TOWN OF NACOSARI, MEXICO, AND MINES.

below the third level, the present depth. The other two are used to hoist ore from the second and third levels. Three winches also extend from the first to the fifth level. The first level is a tunnel 2,000 ft. through the mountain from southeast to northwest. A radiating drift 1,000 ft. long intersects this tunnel near each portal. The main shaft is on the surface at the southeast end and 500 ft. west of the tunnel, and ore hoisted from the second and third levels is trammed through the tunnel and deposited in bins at the opposite end. The ore body on the first level is 60 ft. wide. Stoping is now in progress.

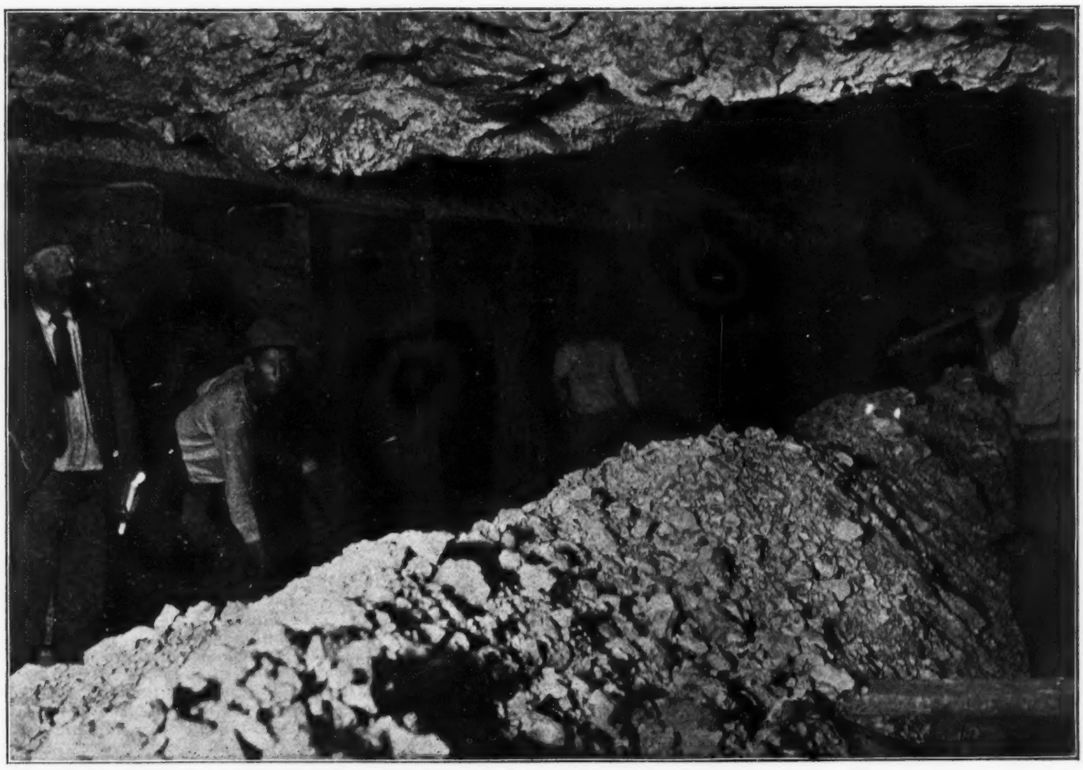
The second level was begun as a tunnel, but now radiates from the main shaft. The drifts and crosscuts aggregate 2,000 ft. and the ledge is 87 ft. wide. The third level drifts 1,000 ft. in the ore body, with 6 crosscuts, the longest 105 ft., still in ore. The fourth level is in water, but 800 ft. of drift and 2 crosscuts 75 ft. each are all in ore, and were run before water necessitated a discontinuance of work. Like the fourth, the fifth level is in water. It has 500 ft. of drift and one crosscut of 75 ft., without reaching the limits of the ore body. The sixth level is a 7 by 9 ft. tunnel beginning at Porvenir, at the terminus of the railroad in Rosario Canyon. It will tap the main shaft 5,000 ft. from the portal. It is now in nearly 2,900 ft. in birds-eye porphyry and must strike the ledge before long. Two Ingersoll-Sergeant drills work night and day. When the tunnel is completed all ore from above will be lowered and all from below will be hoisted and pass out through this tunnel. Until it is completed the ore from the first three levels will be deposited in bins at the portal of the first level tunnel, as described previously. From the bins it will pass to steel ore cars that will be run to the incline and there lowered to the railroad. The incline is 1,900 ft. long, 33 per cent. grade, 3 ft. gauge. The cable attached to skips on each track weighs 3,000 lbs. The machinery that controls the cable at the head of the incline is massive and firmly anchored. The main pulley wheel weighs 7 tons and is controlled by two steel friction bands attached to powerful levers. At the base of the incline the cars are run off the skips onto the railroad.

On account of the excessive cost of timber, stoping will be prosecuted on the filling system. Waste will be run down from the surface through the winzes and thrown into place in courses of 6 ft. The tunnels and drifts are, however, timbered with 10 by 10 in. stuff. The sets are 4 ft. 10 in. from center. 6 ft. 6 in. high. Adjacent to these main ways ore chutes are to be constructed with loading vents at intervals of 50 ft., and ample manways will be provided.

The task of hauling hoisting machinery, air compressors and mine cars through a mountainous country to the additional high altitude of the mine was in itself a hard one; but how infinitely more difficult it was to haul thousands of tons of rails, ties, beams, engines, blowers, water jackets, converter vessels, crushers and hundreds of other items, the experienced reader will readily appreciate. At a rate of from $20 to $24 gold per ton from the railroad terminus at Naco, near Bisbee, the hauling charge for this tonnage has eaten a good sized hole into $75,000. But everything is of the utmost stability and the best that skill can produce.

The 3 ft. gauge railroad from the reduction plant at the town, 5½ miles to the mine, is as carefully constructed as any trunk line road in the United States. For grades and curves it equals some of the Colorado mountain climbers. The longest tangent is 800 ft. Snake-like, with several 40° curves, it climbs more than 600 ft. in its length, and has three trestles, one 400 ft. long and 81 ft. high; a 400 ft. tunnel through solid rock, and many deep fills. The curves are elevated to a 15-mile speed, and ascending from the mine they are compensated so that loaded cars going down require the same power as empty cars going up. The 40-lb. rails are all laid on tie plates and are aligned to a lead pencil point. During the period of construction 700 Mexicans have been employed at one time, with only J. W. D. Moodie, superintendent, his assistant, Mr. York, and one or two other skilled track men to direct such a motley army. The road is estimated to have cost $63,000 Mexican currency per mile. The ore cars are steel, of 6 tons capacity. The ore bins are also steel, of 1,500 tons capacity. A steel trestle extends from the railroad over the bins at the concentrator, into which the ore is deposited from the cars, and from there it passes by gravity into the rock crushers of the concentrator.

Electricity is the power that drives the several departments of the reduction plant. The power house is a steel structure 108 by 62 ft. The steel framework supports a 12-ton traveling crane with a span of 25 ft., available in any part of the building. The dynamos are operated by eight Crossley gas engines made in Manchester, Eng., rated at 110 H.P. at 200 revolutions per minute. Each engine with flywheel weighs 40,000 lbs. They are the four-cycle, hit-and-miss type. The gas is produced by the Loomis water-gas system. Eight tanks contain water for the circulating system for cooling the cylinders. Each engine is belted direct to a 65-Kw. 260-volt shunt-wound direct-current General Electric generator with normal speed of 910 revolutions per minute. The reason shunt-wound instead of compound-wound machines were selected is to insure protection against any lapses of the engines. If any one of these should drop its speed below normal the affected dynamo for the time being would become a motor and would not, therefore, interfere with the action of other motors. The current from the eight generators is carried to a switchboard by overhead cables. The switchboard consists of eight generator panels, one main station panel and one feeder panel. The current is transmitted to the departments over four circuits of Standard conductor, each having an area of 500,000 circular mils. Two of the circuits are taken to two distributing boards in the concentrator, one for each mill, giving a total of 500 H.P. with an overload capacity of 25 per cent. Another is taken to the furnace and converter blower room and the fourth set of feeders is distributed about the plant for other machinery and lighting. Any dynamo may be cut off from the switchboard from three different points in the power house—at the switchboard (at quick-break switch), at either dynamo, and at either engine by a push button that operates as a solenoid on the circuit breaker. The lighting equipment at the beginning for mill and town consists of 400 C. P. 250-volt incandescent lamps and 10 arc lamps, constant potential. A telephone service will connect all departments.



STOPE ON FIRST LEVEL, NACOSARI MINE, MEXICO.

(To be Concluded.)

UTILIZING BLAST FURNACE GASES.—A recent statement is that in Germany there are 41 engines with an aggregate of 22,000 H.P., and in Luxemburg 12 engines developing a total of 6,760 H.P., working with blast furnace gas. The following are the respective figures in other iron-producing countries: Belgium, 8 of 3,700 H.P.; France, 8 of 3,250 H.P.; and Great Britain, 6 of 2,060 H.P., making a general total of 74 engines and 37,720 H.P.

THE RED ASH MINE EXPLOSION IN WEST VIRGINIA.

Mr. J. W. Paul, State mine inspector of West Virginia, has completed and published a report on the explosion which occurred at the Red Ash Mine in that State in March last. This report is so clear and concise that we give it below very nearly in full:

The Red Ash Mine in West Virginia is operated by the Red Ash Coal Company. The mine is located on the line of the Chesapeake & Ohio Railroad on the south side of New River in Fayette County and is a drift mine about 450 ft. above the river, being reached by an incline 1,350 ft. long. The mine has a covering (coping) about 500 ft. thick. The bed of coal is known as the Red Ash and is at present being mined at Rush Run, Dimmock, Echo, Fire Creek, Beechwood, Alaska, Red Ash and other mines. The coal has a thickness varying from 3 to 6 ft. The coal in the Red Ash Mine averages 5 ft. 6 in. in thickness and is practically free from partings.

This Red Ash Mine was opened in 1892 about 1½ miles from the Rush Run Mine and adjacent to the latter mine lease. This Red Ash is faulty in places and is often cut out by rolls (washes) and is frequented in some sections by clay and shale penetrating the deposit. Such irregularities have been encountered in most of the mines working this coal deposit, and the Red Ash Mine has been no exception. For a considerable distance the main heading was driven through solid shale and sandstone.

The coal from this mine is used for steam generation and for the manufacture of coke. The promixate chemical analysis of the coal is as follows: Moisture, 0.76; volatile matter, 22.60; fixed carbon, 75.46; ash, 0.71; sulphur, 0.47; total, 100.00.

The roof of the mine is a strong shale and in some places a micaceous sandstone. Practically no timber is required on the main and lateral headings. The roof remains well intact without the aid of props, even at the passways where the headings are sufficiently wide to accommodate two tracks each of 44 in. gauge. In the rooms props are judiciously used where there is the slightest pretext of danger.

The general safety of this mine may be judged of by the accident list prior to the recent disaster. Since 1892 three men have been killed by falls of slate and coal and eight have been injured by falls of slate and coal, a record commendable for a mine of its development. The question arises, Were the conditions in this mine such as to arouse apprehension of a casualty due to the presence of explosive gas? The history of this mine will best answer this question. The ventilation of this mine up to the late spring of 1898 was produced by means of a furnace located near the crop line on the first right heading. The conditions not being favorable for furnace ventilation, the furnace was abandoned and a fan installed on the left return aircourse during the spring of 1898. The fan had a working capacity of 25,000 cu. ft. of air per minute and the record of inspections show that it actually caused 23,790 cu. ft. of air to pass through the mine.

As early as 1897 this mine was known to generate, in the advance workings, gas of an inflammable nature, in small volumes. In the advance workings of the adjoining Rush Run Mine gas was given off, and through a miner entering an abandoned heading in this mine, after being warned not to enter, his open light exploded the gas and he lost his life. This had the effect of causing extreme caution to be observed in the Red Ash Mine. A fire-boss was employed, as is required by the mining statutes, and a letter of instruction was issued by the Red Ash Coal Company outlining in detail the method to be followed in the examination of the mine, and in this letter the fire-boss was instructed to comply with the State mining laws in every particular.

Gas was known to be generated at the face of all headings beyond the 8th right heading, and it was generally known in the mining community that the Red Ash Mine was a gaseous mine in the most advanced workings. The miners are fully aware of the existence of the gas and it was customary to wait at the parting on the main heading between the 6th and 7th right headings until the fire-boss had made his inspection and reported to the men its condition before they advanced beyond this point. On the morning of March 6th, 1900, the men did not wait at the accustomed place until the fire-boss had made the examination of the mine, but proceeded on their journey to their respective working places. Only a few workmen, trapper boys and mule drivers had reached their places when at 7:16 a. m. the explosion occurred. The fire-boss had entered the mine at not earlier than 6:35 o'clock, and as he had a long journey to make and had over 40 different places to examine, it is quite probable that he had made no more than one examination, since he was found at the place near the face of the 8th right heading where it was customary to make the first test. It appears that gas was found there by the fire-boss, for he had opened a valve on the compressed air line near the face of the heading, this with a probable view of diluting and driving out the gas.

This explosion was not due to a lack of proper legislation. In fact it was due to a positive violation of the mining law. Section 10, chapter 50, of the Acts of 1887 says in part: "And no workman shall enter or be permitted to enter, any mine or part of a mine, generating fire damp, until it has been examined by the fire-boss and reported by him to be safe." Had the workmen remained at their accustomed places until the fire-boss had made the examination of the mine the explosion would not have occurred, unless some accident had happened the lamp of the fire-boss.

The greatest force of the explosion was on the 8th left heading. The direction of the force was toward the mouth of the main heading and toward the face of the cross headings.

The greatest destruction having been at that point, proves that the explosion originated there. No bodies were found on the 8th left heading or air course or rooms on either of said 8th left entries.

It is probable that the open lights carried by the men found on the 7th left heading were responsible for the ignition of the gas. In other sections of the mine there may have been small volumes of gas which under normal conditions would not have exploded, but the explosion on the 7th and 8th left would have the effect of creating a rush of air and a compression of the air throughout the mine. This compression occurring in the presence of a small percentage of gas and dust, it would instantly be ignited by any open light that might be present, thus extending the explosion to other sections where a similar favorable condition would be made for an explosion. This would follow in such rapid succession as to appear at the drift mouth that one general explosion had occurred.

The probable cause of an accumulation of gas sufficient to cause an explosion is explained by the evidence secured at the coroner's inquest. A machine runner being the last to leave the mine at midnight on March 5th stated that he opened the door of the left 7th heading and after coming through the door gave it a kick and did not look to see if it was closed. When opening the door he claimed it met with some obstruction and that he had to push hard to overcome it. It is very reasonable to conclude that this door remained open the remainder of the night. Chapter 9, section 14, Acts of 1890, says: "No miner, workman or other person shall knowingly open a door used for directing ventilation and not close it again." Here was another violation of the law which in itself would render the mine dangerous for the use of an open light beyond the 7th left heading.

A new and dangerous condition has arisen in the mines in this State in recent years. That is an excessive amount of dust as the result of mining machinery. Our laws provide for the watering down of dust in mines generating gas. A similar provision should be made for all mines wherein dust accumulates. With mining machines comes the necessity of heavier shots. These shots often being prepared by men of little experience in blasting, often blow out. A blown-out shot is often the occasion of a dust explosion. In the Red Ash Mine mining machines of the Harrison type were used. Large quantities of dust had accumulated in the mine, and this dust was the principal agent extending the scope of the explosion. A number of kegs of powder exploded in various sections of the mine, and these aided the explosion.

Of the 46 persons killed in this Red Ash explosion no one had sufficient burning to cause death. Only a few of the dead had the hair burned off the head. The force of the explosion was quite violent, as was attested by the condition of some of the bodies. A large number had fractured skulls and in some cases a large part of the skull was gone; arms and legs were broken in many cases, showing that the bodies had been hurled violently. Aside from the 46 deaths resulting from the explosion three men were injured a short distance inside the drift mouth by the force of the air coming out of the mine with great velocity. This force was sufficient to wreck and pile up several cars on the outside of the mine.

Miners as a rule are a fearless class of men and take many risks of danger. A great many miners do not realize the danger of a gaseous mine which is dry and having dust in the rooms and gangeways. A less number know the requirements of the State mine law. Ignorance of the law excuses no man, but in this case a knowledge of the law would often save the lives of many men. Extracts of our mine law should be posted at all mines. Without the co-operation of the officials and employees at the mines the efforts of the Mine Inspectors are attended with unsatisfactory results.

Coroner's juries sitting on mine disasters should endeavor to render a verdict which would show wherein the mine law had been violated, if violated at all. The following is the verdict of the coroner's jury on the Red Ash Mine disaster: "We, the jury, find that B. B. Long and others came to their death by reason of an explosion of gas in the Red Ash Mine, in the County of Fayette and State of West Virginia, on the 6th day of March, 1900, caused by the lack of proper ventilation on that date."

Until we have some legislation governing the acts of workmen inside the mines of this State similar disasters are liable to occur. Within the past five years a number of mines in this State have become gaseous. This department, knowing of the encroaching danger, endeavored at the last meeting of the State Legislature to have enacted a bill which had for its object the reducing to a minimum this liability of accidents from mine explosions and other causes. Our present laws are equal to any ordinary emergency that may present itself in a non-gaseous mine, but not for mines generating gas.

The fact that the mine boss at the Red Ash Mine did not know how much air per man is required by the State mine laws to be admitted through the workings of the mine shows that little discipline would be inspired by his knowledge of the law. However, the ventilation was ample, had the doors been undisturbed. The evidence at the coroner's inquest divulged the fact that there was some question in the minds of some of the employees of the Red Ash Mine as to who had charge of the fan, but it was shown that either the fire boss or the drum runner had been starting the fan for two months previous to the explosion.

A map accompanying the report shows the workings of the Red Ash Mine, the location of doors, regulators, overcast, fan, direction of air currents and location of bodies found. The total number of men killed in the explosion at Red Ash is computed by Mr. Paul at 46. Of these 26 were whites and 20 colored. On them were dependent 43 persons, of whom 14 are widows and 28 orphans.

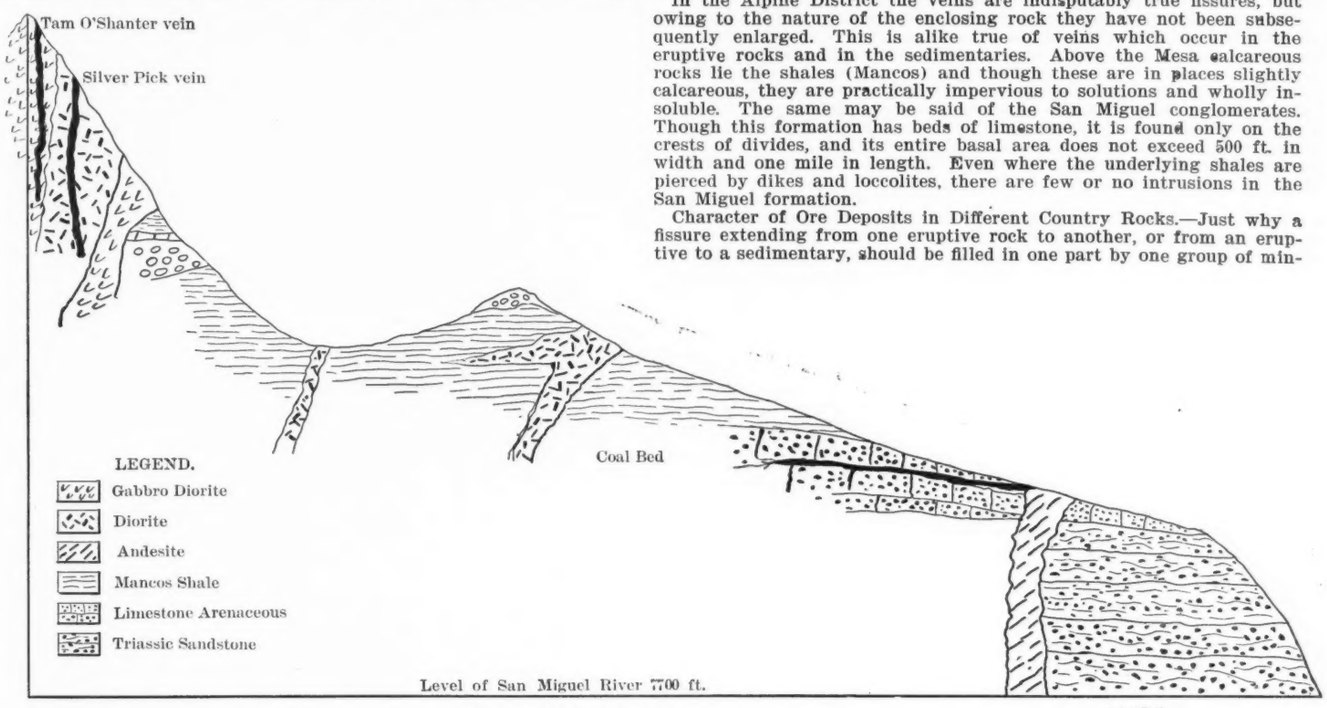
PATENT LAW IN JAPAN.—Under the law of Japan as recently amended the duration of a patent is fixed at 15 years, and of the copyright of a design 10 years, subject to the payment of annual fees. The term of protection obtained by registration of a trade mark is fixed at 20 years, except in the case of trade marks previously registered abroad, where the term is the same as that for which the original registration is valid.

THE KRUPP STEEL WORKS.—According to the London "Engineer," the total number of people employed in Krupp's establishments in January last was 41,750, of whom 25,133 are at Essen, 3,458 in the Gruson Steel Works, of Magdeburg Buckau; 2,726 in the German shipyards at Kiel, and 10,344 in various smelters and coal mines owned by Krupp. The foundation for these gigantic works was laid in 1810 by the grandfather of the present chief of the firm. Essen had then 4,000 inhabitants. It now has 105,528. The firm owns a large number of iron ore mines in Germany and Spain.

THE GEOLOGY AND VEIN SYSTEMS OF THE MOUNT WILSON MINING DISTRICT, COLORADO.

Written for the Engineering and Mining Journal by Frank L. Nason.

In general, the geology of this district is comparatively simple. The successive rock strata are exposed through a vertical height of nearly 6,000 ft. in a horizontal distance of about 9 miles. The nearly vertical walls of the canyons of the San Miguel River and of Bear Creek give a section to the surface of Wilson Mesa, and from Wilson Mesa are other and smaller canyons giving a section up to timber line. Above that line, though many of the mountain slopes are covered by steel slide rock, there are numerous rock exposures free of detritus, and vertical cliffs reaching to the very summits of Mount Wilson and of its various spurs. The rocks consist of eruptives and sedimentaries. The eruptives are easily divided into two classes, diorites and gabbro-diorites, of which the latter appear to be the older. On the Mesa is a rock which the writer has tentatively classed as an andesite which occurs in dikes and bosses; and one unique outcrop of scoriaceous rock as yet unidentified.



GEOLCGICAL SECTION FROM THE SAN MIGUEL RIVER TO THE SUMMIT OF PICK MOUNTAIN.

The outcrop has the appearance of a cinder heap from a blast furnace. The cone is not 100 ft. in height, rises from the level mesa, and is probably the last visible effort of the tremendous seismic forces once so active in this country. The sedimentaries consist of heavy beds of red and white sandstones interstratified by beds of conglomerates and shales (Jura-Trias); heavy beds of arenaceous limestones and calcarous sandstones, soft sandstones, coal beds and soft shales (cretaceous); heavy beds of conglomerates (with granite, gneiss, lime and quartzite pebbles) their beds of shale and limestone (San Miguel formation) probably eocene in age. With the exception of the coal beds before mentioned, no bedded ore formations are known.

It will be observed that there is an absence of limestone beds, corresponding to the lower carboniferous of Leadville and Rico, where great contact veins exist, and though eruptive rocks are abundant in this locality, the absence of limestone beds prevent the formation of great mineral deposits, where the limestone is wholly replaced by ores.

By consulting the accompanying geological section it will be seen that there are beds of rock lying aboue the Jura-Trias sandstones that have a large percentage of lime. It often happens in such cases that the lime is dissolved and replaced by ores of some kind. There is a chance, and a very favorable one, that the cretaceous rocks carrying lime will prove to be mineralized to a point where they can be mined at a profit. Several prospect tunnels have been driven in this rock which show that galena and copper pyrites have to some extent replaced the lime. Although the lead carries high silver values, none of these tunnels show enough values to allow of profitable mining to be carried on at present. The work that has been done, however, is located at a considerable distance from eruptives which have been the agent of mineralization. It has been the writer's belief for a long time that competent exploration, intelligently directed, would lead to the discovery of great deposits of silver-lead-copper ores, which could be concentrated to a high grade product. Along the canyon of the San Miguel prospecting has been extensively undertaken along contacts between the sandstones of the Jura-Trias, but the search has been with the object of locating high grade gold-silver-copper ores.

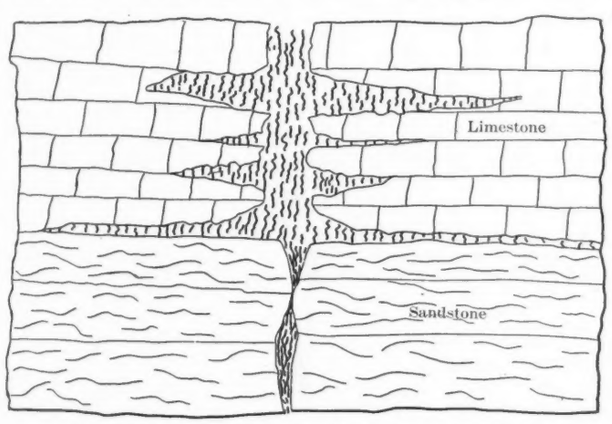
Bearing in mind the fact that the rocks of the Jura-Trias are sandstones, it will readily be seen that they are practically insoluble, hence no fissure could be enlarged, secondarily, to a large fissure.

Primarily it would be assumed that the canyon of the San Miguel River, with its adventitious canyons cutting far into the Mesa, would readily afford a means of testing the truth of the assumption that the overlying calcareous rocks of the cretaceous would be mineralized. As a matter of fact, however, the canyon sections of the sandstones of the Jura-Trias are vertical, while the cretaceous rocks overlying them slope gradually away, and are for the most part covered with soil. A narrow fissure in the sandstone might be enlarged in the calcareous rocks of the overlying strata and give practically no sign of their existence (see accompanying sections).

The only intimation that we have that such is the case, aside from a priori reasoning, is the finding of much "float" lead and copper, highly argentiferous, over the surface of the Mesa. Whatever the reason may be for the lack of active prospecting on the Mesa, these facts are patent to all. The Mesa ores are low grade with outcrops generally (if they exist) obscured by soil; while what may be called the alpine division (above timber line) yield high grade ores with evident outcrops. The locations of the veins are indicated either by gossan, or by deep gashes in the divides, generally filled with slide rock.

In the Alpine District the veins are indisputably true fissures, but owing to the nature of the enclosing rock they have not been subsequently enlarged. This is alike true of veins which occur in the eruptive rocks and in the sedimentaries. Above the Mesa calcareous rocks lie the shales (Mancos) and though these are in places slightly calcareous, they are practically impervious to solutions and wholly insoluble. The same may be said of the San Miguel conglomerates. Though this formation has beds of limestone, it is found only on the crests of divides, and its entire basal area does not exceed 500 ft. in width and one mile in length. Even where the underlying shales are pierced by dikes and loccolites, there are few or no intrusions in the San Miguel formation.

Character of Ore Deposits in Different Country Rocks.—Just why a fissure extending from one eruptive rock to another, or from an eruptive to a sedimentary, should be filled in one part by one group of minerals and in another by a group almost entirely different, no one yet pretends to say with any positiveness. Yet such a difference exists generally and Mount Wilson is no exception to the general rule, as will be seen from the following. The characteristic minerals of the Silver



FISSURE VEIN IN SANDSTONE ENLARGED IN LIMESTONE.

Pick in the order of their abundance: chalcopyrite, galena, pyrite, arsenopyrite, stibnite, tetrahedrite (gray copper), gangue quartz or calcite, sometimes both; free gold rarely visible except by panning. In the Tam o' Shanter, Arcnaean and Special Sessions, the minerals are arsenopyrite, pyrite, chalcopyrite, galena, rare; gangue, almost wholly quartz; gold almost wholly free. In the Silver Pick, gold and silver, average ratio, 1 to 3 or 4; the Tam o' Shanter, Archaean and Special Sessions, gold and silver, average ratio, 1 to 1 or 2.

The country rock of the Silver Pick, the eastern end where was the rich ore-shoot, is a dark green, close-grained diorite; that of the Tam o' Shanter, Archaean and Special Sessions is a coarse-grained rock, gabbro-diorite, locally known as granite. The Silver Pick vein goes from the diorite into the gabbro, and it is a curious fact that while in the pay shoot there is hardly a trace of zinc blende, in the transition zone of low grade ore near the junction of the diorite and the gabbro, zinc is a very abundant mineral.

Driving west has not been carried far enough on the Silver Pick vein to demonstrate that it has or has not any connection with the Archaean or Special Sessions, but one very striking fact is noticed that in neither of these two claims is there hardly a trace of zinc.

In both rocks the values of the veins are very high, ranging from $50 and upward, crude, while lots of several tons have been mined from the Silver Pick carrying gold 80 oz., silver 100 oz.; Special Sessions, gold 19 oz., silver 25 oz.; Archaean, gold 35 oz., silver 40 oz.; Tam o' Shanter, gold 12 oz., silver 14 oz. The above, while much above the average values, are not picked samples, but represent ton lots or more.

As a general rule it may be laid down that with certain modifications, in the diorite rock, chalcopyrite and galena ore are indicative of high values; arsenopyrite in the gabbros; while in either rock if zinc blende is high the ores will run down to from 0.2 to 0.5 oz. gold and 3 to 5 oz. silver.

Vein Filling in Slate Rocks.—On Polar Peak, as a whole, and on the spurs of Mount Wilson forming the divides of Elk, Bear and Bilk creeks, there are numerous fissures, some of them of considerable size, more or less completely mineralized. The minerals are iron pyrites, galena, copper pyrites sparingly, with a gangue of quartz. In many instances there is an almost solid filling of iron pyrites. The values rarely exceed $3 to $14 and in many instances the ores could not be concentrated. Free gold is an almost unknown quantity. Of course veins in rock of this nature can not be enlarged secondarily.

In this connection it may not be amiss to offer facts to substantiate the statement that veins in slate, sandstone and eruptive rocks generally do not enlarge beyond the size of the original fissure. As has been stated, the country rock of the Silver Pick is a black or dark green diorite. In many instances the gangue accompanying the vein is from 3 in. to 4 ft. in thickness, the gangue, of course, being the original diorite from which all the soluble elements have been leached by the decomposition of the compound minerals, leaving alumina in the form of clay and the silica in grains. The vein of sulphide ore often passes through this gangue entirely undecomposed. Repeated assays of this gangue show it to be almost wholly lacking in the precious metals.

The inference from the above appears very obvious. The original fissure was formed and filled, the mineralizing solutions having deposited their metallic burden in the fissures, softening the immediate wall rock without enlarging the fissure.

The conclusion which can be drawn and which is of practical value is this: So long as a mineralized fissure continues in an insoluble rock no permanent enlargement of the vein can be looked for at any depth. This rule is a somewhat bold statement of the writer's conclusions, the elaboration of which may be given in another paper.

Influence of Orientation of Veins in the Mount Wilson District.—There is a deeply rooted belief in the minds of all prospectors, not unshared by well educated miners, that there is a general law which makes that veins which lie in a certain fixed direction are apt to be richer than those which have other courses. There is, of course, a rational basis for this belief, but it is without value for general application. The general course of the vein on the Silver Pick group of claims is northeasterly, and the same is true of adjacent claims upon which development work has been done. So far as experience goes for this locality, this rule may be laid down: Veins running a few points north or south of east are apt to carry high values; those running east or west of north a few points are generally worthless. Another fact may be noted, that, as a rule, copper pyrites is an index, not infallible though, of value; and that almost without exception this mineral is present in easterly veins and absent from northerly veins.

In working the Silver Pick vein cross veins, northerly, are encountered, and without exception iron pyrites is the only mineral present, save quartz and calcite, and they carry hardly a trace of either gold or silver. Of course, flexures in the vein are excepted. For example, the Silver Pick vein has often for a distance of 4 to 6 ft. been bent at right angles to its course, widened to 2 ft. and, inexplicable as it is, the values in these flexures often run from 10 to 80 oz. in gold.

Values in the Country Rock.—When the writer was first located in this district it was reported that all of the diorite country rock of the district ran from $2 to $6 a ton in gold. This was supposed to be true, not only of the immediate wall rock of the Silver Pick vein, but of the diorite as well.

During the summer of 1899 this question was thoroughly investigated, with the following results: Laccolites of diorite and small dykes, 1 mile distant from the mine, were thoroughly sampled and assayed. One hundred assays gave values ranging from 0.0125 oz. gold to 0.15 gold, with a general average of about 0.025 oz. gold. That is a general average of from 50c. to 65c. gold and silver. Two hundred assays from the mine rock covering distances of 6 in. to 4 ft. from the vein gave about the same values with four exceptions. One exception gave 0.8 oz. gold, and the others ranged from 0.2 to 0.4 oz. gold.

The gabbro diorite was not as thoroughly sampled, but in this rock the values ranged from 15c. to 65c. a ton. The slates were not sampled. The calcareous sandstones on the Mesa in the vicinity of the prospect tunnels never failed to give one or more ounces of silver. Careful examination revealed minute grains of galena, and it is this galena which probably carries the values.

In summing up the main points of this paper the following statements can be made: From the standpoint of elevation the Mount Wilson District can be divided into the Piedmont or Mesa belt, and the Alpine.

In the Piedmont belt, successful mining will probably be confined to contact deposits located in the heavy beds of the calcareous sandstones; in the Alpine belt, to the easterly veins in the eruptive rocks alone. From the Mesa belt no shipment of ore has ever been made; from the Alpine belt shipments to at least $1,000,000 in gold, silver and copper have been made.

In the Mesa belt only the crudest and most unimportant prospecting has been done; while, for the reasons given, the writer considers this to be a very promising field for speculative operation.

In the Alpine belt the Silver Pick has been the only regularly worked mine. But in this mine effort has been concentrated in developing and working an area of about 450,000 sq. ft.; and work has been confined practically to the Silver Pick claim. It will thus be seen that no work has been done which tends to prove the extent of the great vein system of the Alpine belt of the Mount Wilson District.

There is no doubt in the writer's mind that intelligent exploration work in both the Mesa and Alpine belts of this district would be eminently successful.

ABSTRACTS OF OFFICIAL REPORTS.

Ivanhoe Gold Corporation, Limited, Western Australia.

The Ivanhoe is one of the most successful and best managed mines in the Kalgoorlie District of West Australia. It was originally developed by Melbourne owners, but in 1897 it was acquired by Mr. Whitaker Wright and his friends in London who floated it as the Ivanhoe Gold Corporation with a capital of £1,000,000. In 1898 the English company made a profit of £140,000, but in the year 1899, the period covered by present report, the profit was considerably increased, being no less than £286,933. Adding £38,784 balance brought forward from the previous year, there was a total of £325,717 available for distribution. Of this £63,833 has been devoted to expenditure on capital account, and £250,000 distributed as dividend, carrying the remainder over to current year's account.

During the year 1899 the mine has continued to develop very satisfactorily. The oxidized ore reserves above the 200-ft. level have been increased by over 3,000 tons, and stand now at 128,000 tons. The sulphides below that level have been opened up and some 83,000 tons of these have been exposed, though they have not so far been treated. The present plant consists of 60 stamps working solely on the oxidized ores. After coming from the battery the pulp passes over 50 ft. of canvas strakes which collect sulphide concentrates, and afterward the pulp is separated into sands and slimes. The proportional amounts of concentrates, sands and slimes are respectively 2, 50 and 48 per cent. Up to the present time about 170 tons of concentrates have been caught, averaging 12 oz. per ton, but none of them have been treated except in an experimental way. The ore treated in the battery in 1899 was 59,664 tons, and the yield was 70,744 oz. bullion; 37,369 tons of sand were treated in the cyanide plant, yielding 21,795 oz. bullion, and 31,685 tons of slimes were treated, yielding 11,438 oz. bullion. The total production was 104,009 oz. bullion, valued at £400,544. The yields from the sands by cyaniding is greater than it otherwise would have been, as a considerable amount of accumulated tailings were treated, and these tailings contained a large proportion of gold, as the mill extraction at the time was not so good as it is now. It is estimated that at the present time the average contents of the ore are about 1.72 oz. of fine gold per ton, and that the amounts obtainable by present practice are 1.18 oz., 0.35 oz., 0.24 oz. and 0.15 oz. fine gold per ton respectively by amalgamation, by treatment of concentrates, by cyaniding the sand and by cyaniding the slimes. This gives a total extraction of about 1.56 oz. or 90.7 per cent. of the total gold contents. The cyaniding of sand shows the least efficiency and it is considered that by means of a grinding plant the extraction may be increased.

The sulphides have not as yet been treated at all, but considerable attention is being given to the study of the best mode of treatment. The concentrates from the mill are being used for this purpose. A small multiple-hearth furnace with mechanical rabbles has been erected, and it is proposed to try the system of dry crushing, roasting, grinding, amalgamation and subsequent cyaniding. The management of this property appears to be conducted with more foresight than has been customary at Kalgoorlie.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

RIGHTS OF ADJOINING OWNERS OF OIL LANDS.—A party, having a right to drill for oil and gas on a farm adjoining another's land, cannot be prevented from using a pump which, by its power, draws oil from the adjoining lands, since such other party has the incidental right to use the most effective machinery, as property in oil and gas in land is not absolute until reduced into actual possession by being brought to the surface.—Jones vs. Forest Oil Company (44 Atlantic Reporter, 1074), Supreme Court of Pennsylvania.

RIGHTS IN CALIFORNIA REGARDING PUBLIC OIL LANDS.—While it is not necessary that a locator should be the first to discover mineral on the land, in order that the prior discovery of another shall inure to his benefit, and give validity to his location, it must have been known to and claimed by him. To constitute prior discovery which will support a location of public ground as an oil placer claim under the mining law the locator must actually have discovered oil within the limits of the claim. Here surface indications or the existence of oil thereon, however strong, are not sufficient, nor is the existence of oil on adjoining lands. In the absence of any intervening rights, the fact that mineral is not discovered on a claim until after the notice of location is posted and the boundary marked is immaterial, and where the discovery is the result of work subsequently done by the locator, his possessory rights under his location are complete from the date of such location.—Sierra Nevada Oil Company vs. Home Oil Company (98 Federal Reporter, 673), United States Circuit Court, California.

OPERATING A BLOWING ENGINE WITH BLAST FURNACE GAS.*

By Adolph Greiner.

This paper gives the results of some careful tests made at the John Cockerill Works in Seraing, Belgium, by M. Hubert, professor at the Liege School of Mines, on the large blowing engine run by waste gas from the blast furnaces. This engine—which was described and illustrated in the "Engineering and Mining Journal," February 10th, 1899, page 171—has a gas cylinder 1.300 meters diameter and 1.400 m. stroke, the blowing cylinder being 1.700 m. diameter. Run at 80 revolutions per minute, its indicated effect was 700 H. P. This engine has been in continuous operation since November 20th last. The tests were made in the presence of several engineers, and the present paper gives an account of them in advance of the publication of M. Hubert's detailed report. The accompanying diagram shows in Fig. 1 a section and in Fig. 2 a plan of the pipe connections and arrangements for conveying the gas from the furnace to the engine.

On the first day, March 20th, the engine was tested simply as a gas motor; in view of this the blowing cylinder had been disconnected, and a powerful friction brake fitted on the outlying length of the main shaft to absorb the power developed. The power observed was over 600 effective H. P. and varied considerably during the day, from the lowest limit, being 561 H. P. to the maximum of 670 H. P., the mean during the trial having been ascertained at 575 H. P. The caloric efficiency of the gas per cubic meter, measured by the calorimetric bomb of Professor Witz, was as follows: Minimum, 965; maximum, 999; mean, 984. Measured by Junker's calorimeter these efficiencies varied between 798 and 937 calories, the mean being 860. The consumption of gas per effective H. P. was 114.4 cu. ft., and per indicated H. P. 90.36 cu. ft. No further cleaning of the gas is attempted than the usual means in use when the gas is burned in boiler furnaces. There is no special cleaning or purifying process employed.

The second day, March 21st, the brake was taken off the shaft and the engine run as a blowing engine. By more or less closing the outlet valve, the wind pressure was caused to vary. During three hours in the morning the speed of running was 84 revolutions per minute, with a pressure of 7.75 lbs. per square inch. After noon the engine was run 3 hours at a speed of 94 revolutions, blowing at a pressure of 8.72 lbs. Finally the engine was run at the high-blast pressure of 12 lbs., the speed falling to 62 revolutions. The quality of the gas appeared to be rather better than on the first day. The mean power developed during the morning was 561 effective H. P. and during the afternoon 725 H. P. The consumption of gas was for the morning trial 109.96 cu. ft. per effective H. P., 82.25 ft. per indicated H. P. per hour. For the afternoon trial the results were 101 cu. ft. per effective H. P., 78.45 ft. per indicated H. P. hour. The caloric efficiency of the gases gave by the Witz method for the morning trials an average of 990 calories and for the afternoon trials of 1,094 calories. By Junker's calorimeter these figures were found to be 876 and 888 calories.

The thermal efficiency of ratio between the power developed and the mechanical work equivalent to the heat of combustion was equal to 30 per cent. in the trials of March 21st. Approximately the heat balance of the engine can be established as follows: Heat converted into work in the cylinder, 30; heat carried off by the water jacket, 30; heat carried off by the escaping gas, 40; total, 100.

This efficiency is highly remarkable. It is well known that in a perfect steam engine the efficiency, taking into account that of the boilers, is never more than 12 per cent.—according to Prof. Hubert. In the ordinary blowing engines the efficiency is much lower, and often falls to one-half of the above figure. This being the case, the experiments justify the opinion expressed two years ago that the gas engine, for equal power only, consumes from one-sixth to one-fifth of the gas which would be required for raising steam for use in an ordinary engine.

It further results from Prof. Hubert's experiments that the ratio between the work done in compressing air and that corresponding to the combustion of the gas, according to the figures given by Mr. Witz, is equal to 22 per cent.—a magnificent result. The same ratio, taking as a basis the results obtained with the Junker's calorimeter, is 25 per cent. On the whole, the 600-H. P. engine marks a new advance in the construction of gas motors.

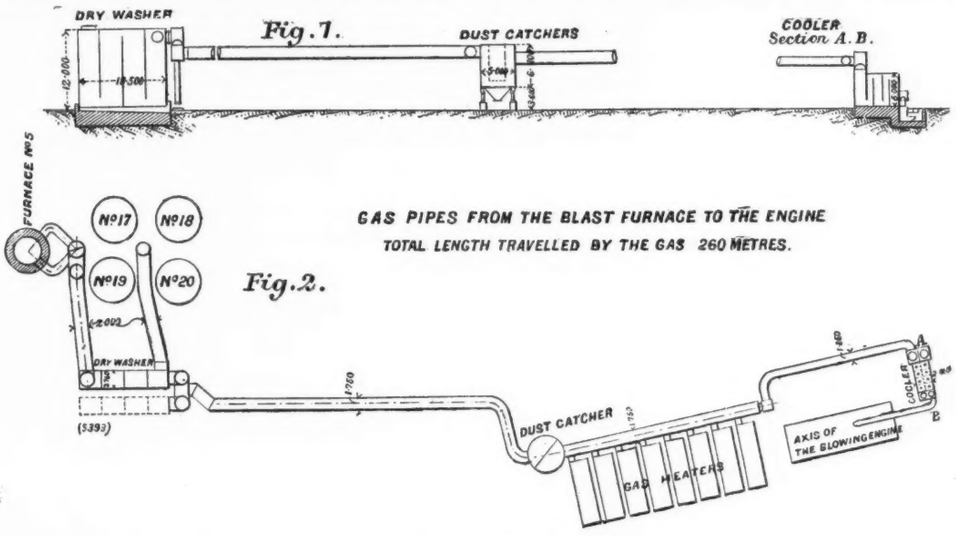
This engine suffices easily for a production of from 150 to 160 tons of pig iron per 24 hours at the Seraing blast furnaces. But there is no intention of stopping at 600 H. P. Drawings are already ready for three 1,200 H. P. blowing engines which have been ordered for a Lorraine concern, of which the furnaces make daily 300 tons of pig iron from oolitic ores containing 30 per cent. of iron. The problem to be worked out is as follows: Supply 600 cu. m. of air per minute at a normal pressure of 95, and the plan is to solve it by the use of two gas cylinders, arranged tandem fashion, with a diameter of 1.40 meters, stroke 1.30 meters, and a blowing cylinder of 1.85 meters diameter. As in the 600-H. P. engines, they have been able to develop an air pressure of 1½ times the ordinary working pressure, so in the new engines they expect to be able to blow when necessary at pressures of from 25 to 30 lbs. These engines will be at work toward the middle of next year.

*Abstract of paper read before the Iron and Steel Institute, London, May, 1900.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid; we cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

143.—S. X.—Hornblende—Allandite.—No. 1, a green rock, is principally hornblende; the green color is due to silicate of iron, not to copper. No. 2. The brownish-red mineral is probably allandite garnet, a lime-iron silicate. The green mineral is apparently epidote, a silicate of iron, aluminum and calcite.



UTILIZING BLAST FURNACE GASES.

144.—W. S. L.—No. 1, piece of black marble with vein containing calcium carbonate crystallized as spar. No. 2, black jack and resin jack, sulphide of zinc or sphalerite; No. 3 contains much silica but is hardly true chert. Similar rock is often found in connection with the zinc and lead ores occurring in limestone in the Mississippi Valley. No. 4, quartz crystals with limonite, a vein formation. No. 5 is galena, lead sulphide. No. 6, honeycomb quartz, with iron stains. No. 7, cherty rock like No. 3. No. 8, dark fine grained siliceous rock; may be an altered limestone; contains vein of calcite, Iceland spar, with a brown mineral, probably zinc sulphide, resin jack. No. 9, silicious limestone, or might be called a limy quartzite. No. 10, fine grained silicious limestone, about half way between a limestone and a chert.

145.—The Field Museum of Chicago has on exhibition what is possibly the finest specimen of smithsonite in this country. It came from Laurium, Greece, and would probably weigh 20 pounds. It has a botryoidal surface, shaded gray in color, and with a remarkable velvety appearance, being almost brilliant. The value of such a specimen is doubtless large.

146.—H. D.—Infusorial Earth.—Good infusorial earth, calcined, washed and dried, is worth $20 to $40 per ton at New York City in large lots. There is a ready market for first-class material. We cannot undertake to quote a price on what you send as it is impure, containing lime or other carbonates, and some iron oxide. The best grades of infusorial earth are pure white and contain practically pure silica.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

South American Coal Deposits.—Can you give me some information respecting the topography and the coal deposits and production of Costa Rica and the Republic of Colombia, having special reference to the availability of the coal deposits and accessibility to the Chiriqui Lagoon and the Gulf of Dolce?—W. H. A.

Answer.—You will find information relating to the coal deposits of Colombia and Costa Rica in an article on the "Coal Trade and Lignite Deposits of Northern South America," by Francis C. Nicholas, published in the "Engineering and Mining Journal," August 20th, 1898.

Gold in Massachusetts.—I have seen in a daily paper an account of a discovery of gold in Western Massachusetts; also a statement that a gold mine had been in operation near Hinsdale for 15 years past. Can you tell me if those statements are true?—P. J.

Answer.—The Hinsdale "gold mine" has been a local joke for a number of years past. At different times people have taken hold of it and spent more or less money and labor; but no one has ever taken any gold out of it—or anything else except a little iron pyrites. The "new discovery" you refer to reads very much as if it was being prepared in connection with the Adirondack business, to which we have referred frequently in the "Engineering and Mining Journal." We do not believe there is anything in the business.

Cyanide Patents.—Will you tell me if the MacArthur-Forrest Company is enforcing royalties on the cyanide patents in this country? I am informed many companies pay no royalty, and that decisions of the courts in Colorado free users from payment of such royalties. I am informed that in Montana no royalties are paid.—J. G. A.

Answer.—There has been no such decision as you refer to given in the courts of Colorado. The only test case involving the validity of the cyanide patents—the suit against the Mercur Company in Utah—was never tried, but was settled by a compromise. It is a fact, we believe, that many companies are using the cyanide process without paying royalty, while others have settled with the owners of the patents in some form. We are informed that the company owning the patents usually demands royalty where it is informed that cyanide is used; but if resistance is made, or payment is refused, the case is dropped. Large companies, like De La Mar's Mercur, and others, are not touched by the owners of the patents. The MacArthur-Forrest patents will run out in 1903, we believe, and it is quite possible that the company is unwilling to enter upon a litigation which would certainly be long and costly, in view of the short time remaining. No suits for infringement of patent or to enforce payment of royalty are now pending.

Utilizing Blast Furnace Gases.—Would it be practicable to pump waste blast furnace gas into tank cars, transport the cars to a distance of one-half mile or so, and use it directly out of the tank cars to burn under boilers at a plant about that distance from the furnace? I know nothing about the gas except that they use it to burn under boilers at all blast furnaces, and that I have seen recommendations from you that the use be made of it in gas engines. There is a furnace going up in this vicinity which may have gas enough to spare to run our plant, but the problem is to get it here, and a tunnel would be costly. What I want to get at from some authoritative source is whether this gas is of a nature that will permit of its use after cooling and if it can be transported as above stated.—W. R. G.

Answer.—It would be impracticable to utilize the waste gases as you propose. The cooling would be rather an advantage than otherwise. It seems to us that a pipe-line of moderate size ought to be quite sufficient.

Permanganate Process.—Can you tell me anything of the permanganate process of extracting gold from its ores? It has been tried, I believe, in Australia.—F. J. J.

Answer.—The Black-Etard permanganate process is an improvement by Dr. Black of Otago University, Dunedin, New Zealand, on a process originally devised by M. Etard, a French chemist. It is, in effect, a chlorination process, chlorine being the active solvent for the gold. It is now in use in Dunedin, New Zealand, and has lately been introduced at the Bethanga Mine in Victoria. Of the process as applied at the last-named mine the "Australian Mining Standard," April 12th, 1900, says: "It can be used on ores free from iron pyrites or other sulphides or arsenides. The presence of copper pyrites or other copper compounds is no exception to its use, but ores containing much carbonate of lime, carbonate of magnesia, or other carbonates are not amenable to it. The permanganate solvent solution contains 12 pounds of common salt, about 12 pounds of strong sulphuric acid, and about 6 or 7 ounces of permanganate of potash crystals, dissolved in 100 gallons of water. The solution thus prepared has a deep violet-red color and an acid salt taste. The whole of the plant required is a roasting furnace and solution, leaching, and precipitating vats. The gold is recovered from the leach in the precipitating vats by the addition of a strong solution of sulphate of iron. The fine gold will settle at the bottom of the precipitating vat in the form of a brown-colored gold slime in the course of 24 hours, when the water may be run off and the slime collected."

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending May 15th, 1900.

649,913. EXPLOSIVE COMPOUND. Sherman Clark, Gold Hill, Ore. An explosive compound formed by mixing nitrate of soda, sulphur, metallic antimony, carbonaceous matter, picric acid, nitric acid, and a reducer.

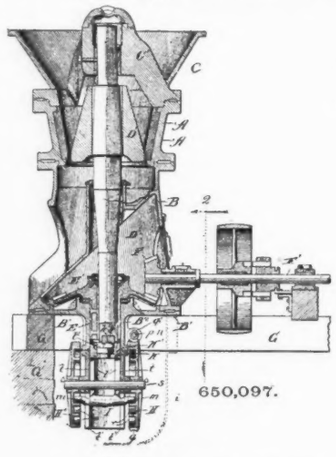
649,941. ARTIFICIAL FERTILIZER. Hermann Menher, Berlin, Germany. An artificial fertilizer containing as an essential ingredient silicon nitrides, said nitrides forming with the acid reagents in the soil, ammonia.

649,950. BATTERY-PLATE. James K. Pumpelly, Chicago, Ill., assignor to Samuel W. Ehrich, New York, N. Y. An electrode for electric batteries, consisting of a core of rolled sheet-lead and supports for the active material composed of cast-lead on each side of the same, said supports being so disposed as to expose the core at intervals.

649,962. METHOD OF EXTRACTING PRECIOUS METALS FROM ORES. Elias A. Smith and Markus H. Lyng, Anaconda, Mont., assignors to the Illinois Reduction Company, Chicago, Ill. The method consists in forming a leach liquid with alkali-metal chloride and oxychloride admixed, digesting the pulverized ore suspended in such liquid in the presence of a free acid to release the chlorine and effect solution of the gold and silver (and copper, if present) precipitating said metals from the separated solution by addition of suitable reagent and, after removal of such resultant precipitates, thereupon neutralizing and electrolytically treating the residual solution so as to directly convert into oxychloride the alkali-metal chloride present in said solution and thus regenerate it for re-use.

649,998. ELEMENT FOR STORAGE BATTERIES. Elmer A. Sperry, Cleveland, Ohio. An element for a battery, consisting of a thin plate provided with raised edges, vertical ribs within the plate, the top raised edge increasing in thickness from each end toward an intermediate point, a terminal lug formed from the said edge at this point and an additional rib extending a short distance into the plate from the under side of the said raised edge opposite the terminal.

649,999. ORE-ROASTING FURNACE. John C. Teller, Minneapolis, Minn. The combination with a rotary drum, of a gas-supply pipe and air-supply pipe, the former surrounding the latter and extending through said drum, and one or more laterally-projecting tuyeres terminating within and located concentric of said opening.



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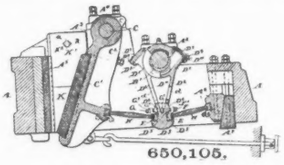

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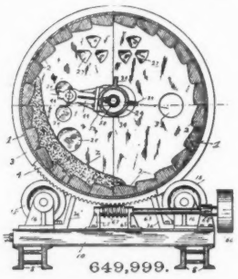


649,999.

650,015. ELECTRIC WELDING. Eugene Lagrange and Paul Hoho, Brussels, Belgium. The method consists in connecting two bodies or pieces of metal as electrodes of the same sign, bringing them into contact with an appropriate uniformly-charged liquid or moist body and then passing through the liquid to the bodies or pieces of metal, an electric current sufficient to develop on the bodies or pieces of metal at the points of contact with the liquid, a gaseous resistance and developing at and near such resistance, incandescence of the bodies, or pieces.

650,019. PROCESS OF EXTRACTING GOLD, SILVER, OR OTHER METALS. John C. Montgomerie, Dalmore, Stair, Scotland, and Henry Parker, London, England. The process of extracting gold and silver and copper, zinc or other base metals from refractory ores, consists in calcining the ore until any sulphides which may be present are converted into sulphates and oxides, subjecting the calcined ore with a compound composed of common salt, a sulphuric-acid-yielding agent as described and an oxygen-yielding substance, as specified to a red heat without the admission of air, treating the mass with water to remove the soluble salts, subjecting the residue to sulphuric acid, then washing the mass, subjecting the residue to a solution of hyposulphite of soda, and finally subjecting the residue to a gold solvent.

650,023. PROCESS OF MAKING MAGNESIUM SUPEROXIDE. Heinrich Oppermann, Bernburg, Germany. A process which consists in first pulverizing magnesium hydrate, then moistening the powder to such an extent only that it still retains its powdery form, and then mixing the moistened powder with dry pulverized sodium superoxide.

650,040. FIRE AND ACID PROOF MATERIAL AND PROCESS OF MAKING SAME. Ernst W. Engels, Essen, Germany. The process consists in covering the surface or surfaces of the material to be treated with carborundum, and then subjecting the latter to the action of an electric arc of sufficient intensity to cause the carborundum to be fused.

650,051. ELECTROPLATING APPARATUS. Louis Potthoff, New York, N. Y. The combination of a tank for containing an electrolytic solution, an endless belt located immediately above said tank and the under side thereof being adapted to travel the length of said tank, one or more hooks suspended from said belt, and electrically connected with one terminal of an electric circuit, an anode or anodes in said tank electrically connected with the other terminal of said circuit, and a carrier adapted to be supported upon said hook or hooks and to be electrically-connected therewith, said carrier being adapted to travel in said solution.

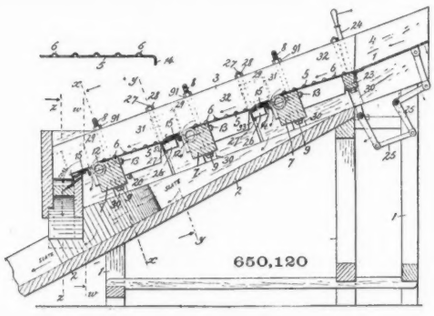
650,075. STEAM-PUMP. Abram Ellis, Augusta, Ga. The combination of a steam-cylinder, piston-rod, and cross-head, a pitman from said cross-head to a crank-shaft, and a slotted disk on said crank-shaft and a wrist-pin therein, and a pitman connected to said wrist-pin and to a cross-head moving on a slideway and connected to a pump-piston.

650,095. PROCESS OF PICKLING PLATES, BARS, OR SHEETS OF METAL. Chauncey E. Robinson and William L. Sutherland, Connellsville, Pa. The process consists in treating the plates to a bath composed of a solution of muriatic acid and water at a temperature from 60 to 125° F. and a starchy substance whereby a coating is given the article to preserve the cleansed surface.

650,097. CRUSHING-MILL. Max J. E. Rotter, Chicago, Ill. The combination with the crusher-head and its movable support, of raising and lowering mechanism for the said head, comprising wheels provided on their inner faces with coincident spiral cams upon which the support rests, and means for turning said wheels simultaneously.

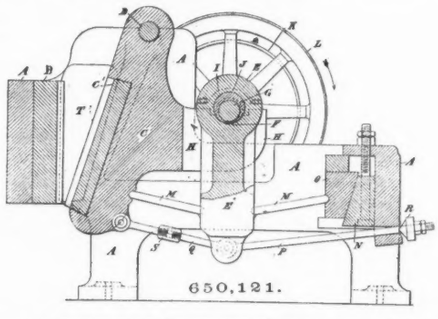
650,105. ROCK CRUSHER. Earle C. Bacon, New York, N. Y. In a crusher, a pitman consisting of a tubular head inclosing an eccentric, converging webs extending tangentially from the head and joined at the lower end, transverse webs, toggle-bearings, flanges supporting the latter, swells formed on the pitman in proximity to said flanges, wedges, and bolts extending through said webs and wedges.

650,121. COAL SEPARATOR. Charles W. Ziegler, Scranton, Pa. The combination with a supporting-frame, provided with a coal-chute, and an independent chute for slate; of an incline comprising transverse bars formed with longitudinal recesses, and hollow cylinders se-


650,120

cured in said recesses, plates secured at one end to said bars, means for adjusting said bars vertically; means for supporting the free ends of said plates adjustably; and adjustable gauge-plates between the plates forming the incline.

650,121. OPERATING MECHANISM FOR STONE OR ORE CRUSHERS. William H. Baxter, Harrogate, England. The combination of a movable jaw-stock, a shaft on which the movable jaw-stock is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mounted, brackets rigidly connected to the rear of and moving with said jaw-stock, a shaft carried in bearings and rising and falling within said brackets, an eccentric mounted upon the last-named shaft, a pitman mounted on said eccentric.

650,124. ELECTRIC METAL-WORKING APPARATUS. Clyde Coleman, Chicago, Ill., assignor, by direct and mesne assignments, to the Bankers' Electric Protective Company, same place. The combination with an electrode between which and a mass of metal an arc is adapted to be formed, of a muffle surrounding the electrode and inclosing the arc and a peep-tube provided with a revolving pane.

650,138. CONCENTRATOR. Charles A. Smith, Los Angeles, Cal. A concentrator comprising a trough gradually decreasing in width from the head to the tail, having sides gradually increasing in width from the head to the tail; adjustable separating-plate for separating the concentrates from the semi-concentrates; adjustable separating-plate for separating the gangue from the semi-concentrates, a yoke attached to a plate and having threaded socket for the reception and working of a screw; and chutes for carrying away respectively the concentrates, semi-concentrates and gangue.

650,167 and 650,168. WATER-LIFT. Howard D. Colman, Rockford, Ill. In a water-lift, in combination, a pressure-water-supply pipe, a pulse-valve, a disk having a connection with the pulse-valve, a piston connected with the disk, for opening the pulse-valve by the pressure of the drive-water, an intake-pipe, a discharge-pipe and a check-valve.

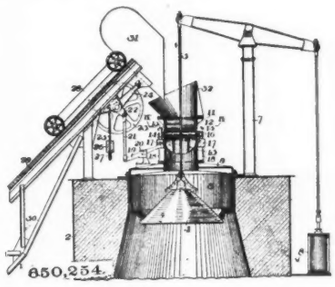
650,187. PROCESS OF MAKING BORACIC ACID AND CHLORATES. Charles C. Moore, Liverpool, England. The process of producing boracic acid from crude borates, which consists in suspending the finely-ground crude borate in water, and passing chlorine into the mixture.

650,225. EXPLOSIVE. Max Bielefeldt, Wittenberg, Germany. An explosive compound consisting of sodium nitrate, potassium nitrate, sulphur, coal-tar, and potassium bichromate.

650,234. PROCESS OF MAKING CARBORUNDUM ARTICLES. Francis A. J. Fitzgerald, Niagara Falls, N. Y. The method consists in compressing a mass of carborundum and causing the same to recrystallize by heating it to an intense degree.

650,235. CARBORUNDUM ARTICLE. Francis A. J. Fitzgerald, Niagara Falls, N. Y. As a new article of manufacture, a dense coherent re-crystallized body of carborundum mixed with graphite.

650,254. BLAST-FURNACE CHARGING APPARATUS. Julian Kennedy, Pittsburg, Pa. A blast-furnace, having a main charging bell and hopper, a stationary supplemental hopper above the main hopper,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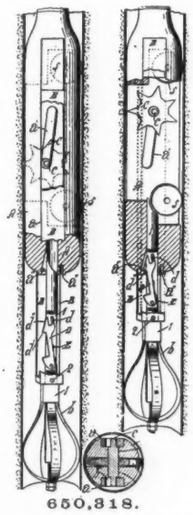
and containing a splitting or dividing device for the stock, a movable closure located within the supplemental hopper, said closure being separate from and movable independent of the sides of the supplemental hopper, and of its splitting device, and mechanism for moving the closure.

650,276. CARBURETER. George B. Robison, Mount Vernon, Ohio, assignor of one-half to Charles F. Brent, same place. The combination with a tank or reservoir for containing hydrocarbon, means for supplying air under pressure to said tank and an outflowing-pipe in communication with said tank for conveying the carbureted or gaseous mixture to the point of consumption, of means connected with the tank for supplying hydrocarbon to the gas-outflow pipe and enriching and increasing the volume of available gas at the point of consumption.

650,317. AUTOMATIC DUMPING-BAILER FOR DEEP WELLS. Edwin A. Hardison, Santa Paula, Cal., assignor of one-half to Wallace L. Hardison, same place. A dumping bailer comprising a shell provided near the bottom with a valve-ring and at the top with a rod-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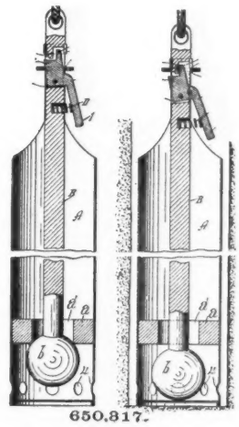
650,317.

guide and with a catch; a valve-rod extending through the hole in the ring and through the guide, and provided at its bottom with a valve to close the hole in the valve-ring; and a latch pivoted to the valve-rod to play through the guide and to latch under the catch to sustain the shell with the valve open.

650,318. AUTOMATIC CASING-PERFORATOR FOR DEEP WELLS. Edwin A. Hardison, Santa Paula, Cal., assignor of one-half to Wallace L. Hardison, same place. Combination of a body provided with an oblique way; a sliding wheel-carrier in which the axle of the wheel is journaled to rotate; a friction device connected with the wheel-carrier to engage the casing to temporarily hold the wheel-carrier stationary with relation to the body of the perforator; a latch pivoted to the wheel-carrier to hold the wheel-carrier in its elevated position with relation to the body; and means for temporarily holding the latch out of engagement with its catch on the body of the perforator.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending April 28th, 1900.

11,218 or 1899. STEEL MAKING. J. R. Billings, Chicago, Ill., U. S. A. Method of adding carbon to steel by forcing powdered carbon into the body of molten steel.

11,540 of 1899. LINING MINE SHAFTS. F. Coulsen, Durham. Improved form of tubbing for lining mine shafts.

11,860 of 1899. GOLD EXTRACTION. L. Lagarrigue, Paris, France. A gold extracting machine in which the pulp is forced through mercury.

12,066 of 1899. MINERAL PAINT. Schroeder & Stadelmann, Oberlahnstein am Rhein, Germany. The production of reddish-violet paints consisting of mixtures of iron oxides from the sulphates.

12,154 of 1899. ALUMINUM PRODUCTION. L. Ott, Roth, Bavaria. Method of producing metallic aluminum in fine scaly particles.

3,104 of 1900. MINERS' LAMP. F. Muller and F. Eumes, Cologne, Germany. Magnetic locking devices for miners' safety lamps.

3,215 of 1900. GRAPHITE PRODUCTION. E. G. Acheson, Buffalo, N. Y., U. S. A. In the inventor's process for producing graphite from carbides, an improved method of producing the carbides from ordinary coal.

3,190 of 1900. IRON SEPARATION FROM ORES. D. A. Pemakoff, Brussels, Belgium. A method of separating iron from ferro-aluminous ores.

PERSONAL.

Mr. John A. Church of New York City has gone on a 2 months' trip to California.

Mr. Charles F. Shelby, for some time past with the American Smelting and Refining Company at Denver, Colo., is now with La Grande Fundicion Central Mexicana, at Aguascalientes, Mexico.

Mr. Austin C. Brown, formerly metallurgist with the Montana Ore Purchasing Company, is now on Captain De La Mar's staff in charge of the Bully Hill copper plant, Shasta County, Cal.

Mr. F. Homan, manager of the Raven Coal and Coke Company, near Cannelton, W. Va., is on a visit to his home in Ohio on account of ill health, and expects to be gone about two weeks.

Dr. P. A. H. Franklin is looking over his Utah and Idaho mining interests. Last week he was in Beaver County, Utah, and after a few days in Salt Lake City he goes to Lemhi County, Idaho.

At a recent meeting of the Trustees of Columbia University Dr. Joseph Struthers, the assistant editor of "The Mineral Industry," Volumn VIII., was appointed honorary lecturer in metallurgy to the unversity.

Mr. George H. Brown has been giving several days to his many Utah interests, shaking hands with his friends in Salt Lake and receiving congratulations on his success in Montana. He probably has returned to Butte by this time.

Mr. Samuel Pascoe of Congo, O., superintendent of the Congo Coal and Mining Company, has been elected auditor of Perry County, O., and has resigned the former position to take effect early in the fall. His successor has not yet been named.

Mr. F. L. Sizer has returned to Butte, Mont., from De La Mar, Nev., bringing back good reports from the April Fool Mine. He states that mining conditions in southwestern Utah and southeastern Nevada are more flattering than for several seasons.

Mr. V. Kashernikoff, chief engineer of the mechanical department of the Chinese Eastern Railway (part of the Trans-Siberian Railway), has been in Chicago and Pittsburg, Pa., and is said to be making purchases of machinery and other material for the road.

Mr. A. W. K. Peirce, engineer for the Consolidated Gold Fields Company of South Africa, at Johannesburg, who has been in this country for more than 2 months obtaining data on machinery, etc., has been called to his post. He leaves on the "Lucania" on June 9th.

Mr. Barton Sewell, Mr. A. Raht and Mr. A. Eilers, of the American Smelting and Refining Company, devoted several days last week to investigating ore supply and treatment conditions in Utah. Before their departure they assured the mine owners of a new smeltery and a general lowering of treatment charges.

Mr. W. B. Begeer, who for a number of years held the position of first assayer of the State Mint at Pretoria, South Africa, has arrived in Denver, Colo., and expects to be identified with the cyanide process in that State, of which branch of metallurgy he has made a special study. He is the author of a book on the "Metallurgy of Gold on the Rand," which was published at Freiberg, Germany, some time ago.

Mr. Albert Ladd Colby, metallurgical engineer of the Bethlehem Steel Company, sailed for Europe on June 6th. Mr. Colby was last fall selected by the Association of American Steel Manufacturers as its representative to the Paris Exposition and the International Congresses pertaining thereto. He will present a paper before the Congress on Testing Materials, advocating the adoption, as international standards, of the standard specifications for iron and steel recently proposed by Committee No. 1 of the American Section of the International Association for Testing Materials. The paper will show the high class of specifications which American steel manufacturers are willing to meet. Mr. Colby has been appointed United States Juror in Metallurgy, a delegate from the United States to the Testing Congress, and a delegate of the American Chemical Society to the Congress on Applied Chemistry.

SOCIETIES AND TECHNICAL SCHOOLS.

International Petroleum Congress.—The first meeting of the International Petroleum Congress will be held in Paris, August 16th, in connection with the Paris Exposition. Mr. P. Dvorkovitz is honorary secretary. His address is 16 Devonshire Chambers, Bishopsgate, London, E. C., England.

Montana Society of Engineers.—At a regular meeting of the society May 12th, President Blackford presided. Ten members and 3 visitors were present.

The feature of the evening was the discussion on "The Relation of the Mining Engineer to Mining Litigation." Mr. Geo. T. Wickes opened the discussion on the subject which he treated in an able manner. The other members who spoke were Messrs. Wilson, Macdonald, Tower, Page and Vail.

Yale University.—At the May meeting of the Yale Corporation a number of changes were made in the faculty of the Sheffield Scientific School to take effect at the end of this college year. Walter I. Lowe, instructor in history, will accept a full professorship in Wells College, Aurora, N. Y.; his position is not yet filled. The following instructorships were filled: Dr. Rudolf Schwill, in German; Mr. Frederick Robbins, in French; Dr. Henry Foote in analytical chemistry, and Dr. Yandel Henderson in physiological chemistry. Assistant Professor Percy F. Smith was advanced to a full professorship of mathematics and made a member of the Governing Board. Assistant Professor F. E. Beach was reappointed assistant professor of physics. Instructor George P. Starkweather was advanced to assistant professor of applied mechanics. H. A. Bumstead, instructor in physics, was advanced to assistant professor of physics. Instructor P. T. Walden was appointed assistant professor of chemistry.

Columbia University.—At a meeting of the trustees this week it was announced that a friend of the institution had made a gift of $100,000 for the construction of a students' hall to be used for Young Men's Christian Association purposes and for developing the religious life of the students. The hall will be used for meetings, lectures, intercollegiate debates and concerts. George W. Egleston received permission to erect a memorial tablet to his brother, Prof. Thomas Egleston, founder of the School of Mines. The tablet will be erected in Egleston Museum. Announcement was made of a gift of $10,000 by Phelps, Dodge & Company as a contribution to a special fund for the endowment of the departments of mining and metallurgy; also, additional gifts for the same purpose of $2,500 from Guggenheim's Sons, $1,000 from Lewisohn Brothers, and gifts for the same purpose from the American Metal Company, Anton Eilers and E. E. Olcott. It was announced that J. B. & J. M. Cornell had made a donation of appliances for the department of mechanical engineering.

President Low announced the reappointment of the following deans: Prof. Van Amringe of the University, Prof. Hutton in applied science, Prof. Burgess in political science, Prof. Butler in philosophy, and Prof. Woodward in pure science.

Engineers' Club of St. Louis.—At the meeting on May 16th President W. S. Chaplin, presiding, 19 members and 14 visitors were present.

The Office Men's Club had invited the Engineer's Club to hold this meeting at its new quarters, to participate in the general discussion of the question of "Water Filtration." Unfortunately a rainy evening and the condition of the railway accommodations kept down the attendance. Prof. Van Ornum reviewed the entire history of the movement, which originated with the Engineers' Club, and had been ably supported by the important commercial clubs. He followed it to its introduction into the Municipal Assembly, and the defeat of the bill providing for an appropriation to erect an experimental plant.

Mr. Colby very ably presented the needs and importance for immediate action in the matter of filtration.

Dr. Homan and Mr. Tully, of the Architects' Club, also voiced strong sentiments in favor of such measures as would lead to a proper purification of the city water.

Mr. Russell gave a detailed description of the various kinds of filters, the difficulties encountered by other large cities, and the uncertainties met with in treating different waters, making it highly advisable to install an experimental plant in order to determine the most efficient method of handling the water. It was estimated that a filtration plant would cost between $5,000,000 and $6,000,000, so that a sum of $50,000 for an experimental plant would be well expended.

INDUSTRIAL NOTES.

The Emerson Pump Company of Washington, D. C., has incorporated with a capital of $100,000 to manufacture and sell all kinds of pumping machinery.

The "C. R. Van Hise," a typical steel ore carrier for the Rockefeller Company, named for Prof. Van Hise of Wisconsin, will be launched at the Superior, Wis., yards in a month. The vessel is 466 ft. long and of 8,500 tons capacity.

Marks Lissberger & Son, of New York City, recently purchased the Newport & Providence Lead Works, at Newport, R. I. The plant is being thoroughly overhauled, and will soon be in operation, making lead pipe, sheet lead, shot, solder and white metal alloys. The plant has been idle some years.

J. W. Duntley, president of the Chicago Pneumatic Tool Company, and also president of the New York Air Compressor Company, has just returned from Europe, bringing an order for 12 air compressors for European shipment. The New York Air Compressor Company has received an order for one of its compressors to be shipped to Yokohama, Japan.

The Chicago Pneumatic Tool Company has received advices from its president, Mr. J. W. Duntley, who is now traveling in Europe, that he has booked orders for 1,000 tools for various countries. The company has shipped a compressed air plant for the Kawasaki Dock Yards at Kawasaki, Japan. The shipment includes a large electrically driven air compressor, pneumatic hammers, drills, shell riveters, etc.

The Arthur Fritsch Foundry and Machine Company of St. Louis reports good business for both its machine shop and foundry department. The machine shop is busy repairing and overhauling locomotive drivers; also reboring air cylinders for the Missouri mining regions. The company is also building a concentrating table for the Desloge Consolidated Lead Company, Desloge, Mo. Recent orders also include crushers for southwestern mining plants.

The recently incorporated Canada Steel Company, by an act of the Dominion Parliament, has elected directors as follows: E. A. C. Pew, president; F. E. Finckley, vice-president, and Messrs. Hardabeck, Butz and Young. The architects and engineers are E. M. Butz & Company, Pittsburg, Pa. The ore for the furnace is expected to be brought from the West Hull mines, near Ottawa. Mr. Pew's associates in the enterprise are Americans. The capital stock is $18,000,000, and the works are to be constructed at Welland, on the Welland Canal.

The American Clay Manufacturing Company, organized early in this year as a consolidation of various sewer pipe manufacturing concerns, has recently acquired the Bennett Sewer Pipe Company, of Jackson, Mich.; the Grand Ledge Sewer Pipe Company, of Grand Ledge, Mich., and the F. C. Shann Company, of Sharon, Pa. The American Clay Manufacturing Company is capitalized at $10,000,000, all in common stock. In addition there is an issue of $2,500,000 6% bonds, the first interest on which falls due in September next. The business of the company is reported satisfactory.

It is stated that the new Bessemer plant of the Republic Iron & Steel Company at Youngstown, O., may be ready for operation about July 1st. The Best Manufacturing Company of Pittsburg has the contract for the 20-in. steam main and connecting lines. The Penn Bridge Company of Beaver Falls, Pa., has finished the converting and blooming mill building; the soaking pit furnace building is also completed. The engine house is equipped with 3 Baker blowers, 3 large hydraulic pumps, 3 upright blowing engines and a Dick & Church engine. The electric plant is driven by a Buckeye engine from the Buckeye Engine Company, Salem, O. The cupola bottom and boiler houses and gas producers will soon be finished.

Thus far this year the various lake yards of the American Company have launched 12 freight-carrying steamers, including two 500-footers. These craft cost $4,500,000, and their combined carrying capacity is 70,000 tons. There are now on the stocks in the yards of the company 11 more craft, the combined carrying capacity of which is 60,000 tons; cost, $4,000,000. Three of these are at the South Chicago yards, one at Cleveland, one at Lorain, two at Detroit, one at Bay City and one at West Superior. In lake shipyards outside of the American Company craft have been launched, or are almost ready, with capacity for 40,000 tons, making a total of new tonnage of the largest class of 170,000 and total valuation of about $11,500,000.

TRADE CATALOGUES.

"Brownhoist" tubs and buckets are described in a 14-page pamphlet published by the Brown Hoisting and Conveying Company, of Cleveland, O. Automatic dumping tubs, made of steel plate in a variety of patterns are shown, also an automatic rock bucket, an automatic shovelling bucket, Cole's patent grab bucket and a bottom dump bucket for rapid work. Numerous cuts show details of construction and how the buckets look at work.

The Industrial Water Company of New York City publishes a little pamphlet bound in red, of 42 pages, containing a reprint of a series of articles by C. Hershel Koyle that appeared in the "Railroad Gazette," on "The Work of Railroad Men on the Problem of Pure Water for Steam Boilers." This paper gives figures showing the loss by using feed water that produce scale, the ease with which scale can be prevented and the simple and automatic action of improved water purifying plants. The pamphlet should interest all parties who have to use hard water for producing steam.

The Crosby Steam Gage and Valve Company of Boston, Mass., manufacturers of standard appliances under the Crosby and other patents,

publishes a complete catalogue of its wares, a cloth-bound book of 186 pages. The catalogue shows gages for every variety of work from one for a farm engine to one for ordnance work. The Crosby gas mine and draft recorder, is designed for making a continuous record of the pressure of fluids, being a more delicate instrument than the Crosby pressure recorder. The valves shown are of a great variety of patterns and for all imaginable purposes. The Crosby lubricators, the Bosworth feed-water regulator and the Crosby steam engine indicator are other appliances described, the last-named in considerable detail. An instrument of service to draftsmen is Amsler's planimeter.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ARIZONA.

Yavapai County.

Empire Mining Company.—Machinery for this company's new mill on Groom Creek has arrived at Prescott. The grading for the foundation of the mill is completed and construction has started. The mill will have 10 stamps, each stamp weighing 1,000 lbs. Power for 20 stamps and mill capacity for 10 additional stamps will also be provided besides cyanide tanks. The plant will be running soon.

CALIFORNIA.

The California Debris Commission will give a hearing on June 11th to the following new applications to mine by hydraulic process in this State: From Robert Hill, in the Gardner's Point Mine, near Port Wine, Sierra County, to deposit tailings in Saw Mill Ravine; from Charles Hilton, in the Dry Gulch Placer Mine, near Pleasant Valley, El Dorado County, to deposit tailings in Clear Creek; from L. Foss, in the Woodchuck Mine, in Gold Lake mining district, Sierra County, to deposit tailings in Woodchuck Ravine, and from the Golden Hill Mining Company, in the Golden Hill Mine, near Powellton, Butte County, to deposit tailings in a ravine.

(From Our Special Correspondent.)

Southwest Miners' Association.—The directors of this association at a recent meeting in Los Angeles organized with the following officers: Thomas Ewing, president; J. Irving Crowell, 1st vice-president; C. W. Conway, 2d vice-president; George N. Nolan, secretary, and the German-American Bank, treasurer. The association will be represented at the International Mining Congress, to be held at Milwaukee, Wis., beginning June 19th, by 6 delegates.

Amador County.

(From Our Special Correspondent.)

Oneida.—Work on the new shaft, down 2,090 ft., has been discontinued until the work of pumping out and retimbering the old shaft is completed. Work on the 100-stamp mill is pushed, as milling will commence very soon.

South Spring Hill Gold Mining Company.—Superintendent J. R. Tregloan of this company is preparing to work the Medean Mine, just south from Amador City, on an extensive scale. The incline shaft is being cleaned out and repaired. The mill is also being repaired, and 10 of the stamps will crush ore from the Lincoln Mine.

Calaveras County.

(From Our Special Correspondent.)

San Pedro.—This mine, near Glencoe, has been bonded for $11,000. A new hoist has been contracted for and development work will be pushed.

Sheepranch.—This mine at Sheepranch is well equipped with machinery, including a 20-stamp mill and a dynamo. The dynamo will supply light for the mine and the town. Eighty-two men are employed.

Mariposa County.

(From Our Special Correspondent.)

Mariposa.—On the 500-ft. level the vein has been encountered and a station has been cut. Drifts will be run both east and west and sinking continued.

Persia.—Fire at this mine, 7 miles from Mariposa, destroyed a 10-stamp mill, the hoisting works and shop. The large building used for the accommodation of the workmen was shattered by the explosion of 200 lbs. of giant powder. The fire started near the rock crusher at the top of the mill. It is believed to have been of incendiary origin. No lives were lost.

Nevada County.

(From Our Special Correspondent.)

Giant King.—The new machinery is in position at this mine, 1½ miles south from Washington, and sinking on the vein has begun. The property, which comprises 3 claims, is worked under bond by A. Pugh and associates.

Jenny Lind.—This mine at Grass Valley, being developed by 2 tunnels, which give 220 ft. of backs, is producing some very good ore.

Sleeping Beauty.—This property, comprising 2 claims 3 miles northeast from Moore's Flat, is opened up by 2 tunnels. The vein carries a large percentage of arsenical pyrites. The mill has started.

Riverside County.

(From Our Special Correspondent.)

Ophir.—This property, 6 miles southwest from Perris, is being developed by the new owner, James Sigafus, who has already struck a good body of fair grade ore. A new hoist and a 20 H. P. engine have been put in.

San Bernardino County.

(From Our Special Correspondent.)

Rich placer ground has been discovered about 20 miles northwest from Barstow. A great many locations have been made and several dry washers are on the ground. The great drawback will be water supply, as even the drinking water will have to be brought in.

Shasta County.

(From Our Special Correspondent.)

Afterthought.—Manager William McDermott has returned from a trip to San Francisco, where he ordered a steam hoisting plant.

Bully Hill.—A new vein 300 ft. west of the original is proving valuable. A 50-ft. drift is all in ore, showing a 7-ft. grace in the breast, of 7% copper, $2 gold and 14 ozs. silver. It is expected that the 100-ton smelter, in process of construction, will be in commission in November. Austin H. Brown, formerly with the Montana Ore Purchasing Company, will be here before June 10th to take charge. The Trent Engineering and Machinery Company, of Salt Lake City, has the contract for the smelter.

Shasta Electric Light and Power Company.—This company, incorporated with a capital stock of $1,000,000, has as directors George A. Knight, C. E. Green, C. A. Warren, F. S. Edinger and Fred. S. Knight. It is the intention of the company to erect an electric power plant on the McCloud River above Baird.

Sierra County.

(From Our Special Correspondent.)

Alaska.—The London & California Mining and Milling Company is doing considerable work on this property, near Pike City. Drain tunnel No. 2 is being run to cut the shaft at a depth of 135 ft. In the meantime the mill will handle the old Alaska dump, which is connected with the 20-stamp mill by 800 ft. of tracks. This dump is said to contain 60,000 tons of material, estimated to average $3 per ton. W. B. Dunlap is superintendent.

Siskiyou County.

(From Our Special Correspondent.)

Deep Bank.—This hydraulic mine on the South Fork of the Salmon River is to be re-opened for extensive operations. Fifteen men are now digging a ditch and building flumes, etc.

Greenhorn Gravel No. 1.—A small force of men is prospecting from the new shaft, which struck bed rock at 80 ft. The best pay gravel is at the 100 ft. level, and by running drifts a short distance the management expects to find bed rock lower down and the blue gravel richer.

O. & C.—After considerable development work, consisting of tunnels and drifts, had been done, a good body of pay ore was located which keeps the 5-stamp mill and concentrator constantly employed. Tyrer & Son of Colorado are working this property, near Carson Gulch, 4 miles from Hornbrook, under bond.

Trinity County.

(From Our Special Correspondent.)

Bully Choop.— This mine, about 1 mile west of Mount Bully Choop, is doing very well. The 10-stamp mill is kept going on good average grade ore.

Cleveland.—This mine, a short distance south of the Bully Choop, is short of hands on account of being in arrears for wages, and the small reserves of pay ore having been exhausted. J. F. Coleman, bondholder, is reported to be in the East to enlist the aid of capital. No efforts to speak of have been made for the last 15 years to develop the property.

Tuolumne County.

(From Our Special Correspondent.)

Grizzly.—On the 700 ft. level the south drift is in 150 ft., with a vein about 16 ft. wide, and the north drift, in 70 ft., will be continued 500 ft. The rich rock raised on for 40 ft. ran out, showing that the pay shoot lay under instead of over the 700 ft. This ore milled from $150 to $200 per ton. The 20-stamp mill is crushing day and night on ore stoped from between the 3d and fourth and the 6th and 7th levels, and from the south drift.

COLORADO.

Dolores County.

(From Our Special Correspondent.)

Emma Gold Mining Company.—The force consists of 50 men, and the output averages 30 tons each 24 hours. The mill near Rico is working regularly on second grade ore with 15 stamps. Shipments of concentrates began June 1st and will continue weekly during the season.

Great Western.—Dodd & Graham have resumed operations at Rico for the summer.

Richmond.—J. W. Burns and Emma R. Graves, owners, have begun suit against the town of Rico for $34,300 damages, alleging that in 1889 the trustees of Rico illegally constructed a flume over the property for supplying the town with water, leakage from which has rendered the development of the Richmond vein impossible.

Weaver-Burke.—The force at this Rico mine has been increased to 20 miners and shipments will increase accordingly.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—Ayres Mining and Milling Company to Keystone-Leavenworth Manufacturing Company, the Keystone lode, Topeka lode, mineral survey No. 245; the West Wyandotte Mining Company to J. T. Ijams, a portion of Topeka lode No. 518; J. E. Lightburn to F. S. Stevens, the Grand Union lode; W. H. Paul to H. R. Burtt, et al., the Pay Rock lode; A. K. Flack to E. C. Flack, the Mineral Point Group of 18 lodes and Ethel placer.

Lake County—Leadville.

(From Our Special Correspondent.)

May Tonnage.—The figures now being compiled will show a production in the neighborhood of 90,000 tons of all classes of ores for May. This is a very heavy increase and shows great activity throughout the district.

Railroad Extension.—The Denver & Rio Grande, which already extends to Ibex, is now trying for a right of way to the Midas, Coronado, Sixth street and other properties clear to the Penrose. If this branch is built it would enable those mines to increase their output, and would prove valuable to low grade producers along the route.

Zinc Product.—The output on zinc in May was over 6,000 tons. A pretty heavy tonnage compared to no product a year ago. Another heavy shipment has just been made to Belgium.

A. V.—This is a new project of great importance. It comprises a long-time lease on the A. V. and a portion of the Starr placers located just south of the Harrison Reduction Works on Harrison avenue, and is a territory that has been looked at some years, but where leases could never be closed. Dennis Sheedy of Denver is at the head of the new syndicate, and the new shaft is already started. Well-informed mining men have no doubt but that the continuation of the ore shoots of the Bohn, Bon Air and others will be caught. A fine plant of machinery has been ordered.

Boston Gold-Copper Smelting Company.—This company is putting in an immense Connellsville blower. Excavation has also begun for 2 new furnaces which, when completed, will give the company a capacity of 1,000 tons per day.

California Gulch Mining Company.—This, one of the new downtown shafts being sunk in California Gulch, opposite Gaw's brewery, has struck contact at 400 ft. which is heavily iron-stained.

Comstock.—The new shaft is going down slowly owing to the hard ground. It is down 575 ft. Boston people are back of this enterprise.

Diamond.—This new shaft at the head of Big Evans Gulch is down 500 ft., at which point a station is being cut for a pump.

Fortune.—Much development work has been done during the past 60 days. Shipments resume this week and will be regular from now on, 25 to 30 tons of very good grade ore per day.

Highland Mining and Milling Company.—This company, owning the Highland Chief property on Breece Hill, has done no work for some years, but is now figuring on a deep shaft.

Neusitz.—In this new proposition west of Harrison avenue, going down on virgin territory, Manager Denison has encountered solid porphyry at a depth of 115 ft., which is some distance higher up than was anticipated. The company will now put in a diamond drill to explore the lower formations.

Tarshish.—This new shaft on the Seneca reserve has reached contact at 375 ft. While some prospecting will be done there, the shaft will be sunk a total depth of 600 ft.

San Miguel County.

(From Our Special Correspondent.)

Damon & Darling.—Chas. Peterson is developing these properties on Bear Creek under bond and lease and has a large vein of milling ore, with some higher grade. Development proceeds in a drift 115 ft. long.

Smuggler Union.—Repairs on the mill at Pandora has been completed and the plant is again running smoothly, with a capacity of 175 tons daily.

Suffolk Mill.—This plant has again been started for its season's run and is working on ore from the Suffolk and Le Berte properties.

Summit Tunnel.—This long tunnel by June 15th will be within the bounds of Summit property.

Swamp Canyon.—J. W. O'Brien, developing a prospect in this district, has encountered a 3-ft. vein of high grade ore near grass roots.

Summit County.

J. B. Moulton, general manager of the North American Gold Dredging Company at Breckenridge, has begun work for the season and is at present operating one Risdon dredging machine and one Evans hydraulic elevator on the extensive placer deposits of this company.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Anaconda Gold Mining Company.—It is rumored that the Mary McKinney Company has offered to buy 3 claims of this company for $125,000. These claims, the Rustler, Grover Cleveland and Anaconda claims, adjoin the Mary McKinney. If the sale is made almost enough money will be secured by this company to pay off the indebtedness. While it is by no means sure that the rumor is correct, the company's affairs are certainly more hopeful.

Strattons Independence, Limited.—The 4th quarterly dividend has been declared, amounting to $480,000. A circular letter to the stockholders shows the mine to be in very good shape. The total output for the year amounted to 37,266 tons of ore of the value of £563,400 sterling, an average of over £15 per ton. In spite of the heavy production, the visible ore in the mine is about double the amount of the reserves at the time of the first examination of the mine by Mr. Rickard. The property is now entirely out of the hands of Mr. Stratton. There are about 2,500 stockholders in the company.

Triumph.—The suit of the Calhoun Gold Mining Company will soon be finished. It has assumed large proportions for an injunction suit, and several prominent engineers of the district have been employed on it. The properties are on Battle Mountain, and the Triumph claim has a large body of good ore. Extra lateral rights are involved.

Vindicator Consolidated Gold Mining Company.—A new plant of machinery is to be put on this property, a direct-connected 20 by 48-in. hoist, just like the one being placed on the Ajax. It is made by Webster, Camp & Lane of Ohio, and when in place will be one of the finest hoists in the district. The cable used will be flat.

IDAHO.

Idaho County.

St. Patrick.—At Grangeville a strike is reported on the surface between the present workings and the Dewey tunnel, about 150 ft. from the main shaft. It shows 5 ft. of quartz, carrying gold. The ore is a white quartz, showing hardly any mineral, either oxide of iron or sulphurets.

Owyhee County.

De Lamar Mining Company, Limited.—Manager Huntley reports that in April 4,303 tons of ore were treated at the mine. The rock assayed $11.43, in gold and silver, and the tailings $2.41. The total estimated return for the month was $46,364, the operating expenses, $33,217, and the estimated profit, $12,147.

Shoshone County.

Headlight Mining Company.—This company, recently organized, proposes to develop a group of claims covering the western extension of the Mammoth lode, at the ridge between Nine Mile and Canyon creeks. It is stated that the company has disposed of stock in New York and Boston. Work is expected to begin on a 1,000-ft. tunnel this month.

Hecla.—A new flume is being built for the mill at Gem which will take the water from Canyon Creek just below the Frisco concentrator. The new flume is parallel to the old one and carries about as much water. The mill is running two shifts and has been for 10 days, although the mine is not producing enough ore to crowd it any. Before the Hecla took its lease on the mill the Mammoth had it fitted up to handle the carbonate ore from its upper workings. That ore made more slime than galena, and slime machinery was added until there are now 2 round tables, 5 Wilfley tables and 5 Frue vanners, giving it the greatest slime capacity in proportion to its size of any concentrator in the Coeur d'Alenes.

Washington County.

Thunder Mountain Consolidated Gold Mines Company.—This company, it is said, has ordered of Fraser & Chalmers of Chicago a 25-ton Huntington mill. A Pelton wheel may generate power, or it may be necessary to use an engine. The whole thing will be in running order by September 1st.

MICHIGAN.

Copper—Houghton County.

Atlantic.—The copper output for May and 5 months is: May, 290 tons; 5 months, 1,346 tons.

Baltic.—The output for May was 63½ tons, which compares with 62 tons.

Calumet & Hecla.—Late reports received at Boston state that the temperature in No. 2 Hecla shaft is decreasing, and the situation is more promising than at any time since the fire broke out nearly two weeks ago. The shaft will probably not be unsealed until all danger of the fire starting again is over.

Wolverine.—The output for May and 5 months is: May, 231 tons; 5 months, 1,123½ tons.

(From Our Special Correspondent.)

The last shipment of copper this week was 50 tons, on the steamer "Mohawk," by the Quincy Mine. Part of the Calumet & Hecla smelters and stamp mills will be shut down if the fire in the mine continues any length.

Calumet & Hecla.—All the shafts have been closed down, except those on the amygdaloid and on the conglomerate south of No. 8. No. 2 shaft is quite heavily timbered, and may burn some time. Between the different shafts at the various levels the iron doors have been closed and the crevices filled with clay. Many of the men who were formerly working on the conglomerate are now working on the amygdaloid, where stoping may be begun. The ground around the mouth of the burning shaft is kept saturated with water to make it more impervious to gas.

About 40 men are at work excavating for a new engine house to be erected east of No. 15 shaft. It will be 70 by 109 ft.

A new warehouse of corrugated iron, measuring 80 by 250 ft., will be built this summer near the supply office. A standard gauge railroad, passing through the warehouse, will be laid to the Duluth, South Shore & Atlantic tracks.

Franklin.—The excavation work for the engine house at No. 5 is nearly completed. The dimensions are 38 by 34 ft.

Isle Royale Consolidated.—The site for the new pump has been cleared and excavation work will begin at once. The pump, a duplicate of that at the Arcadian, is being built by the Nordberg Manufacturing Company, of Milwaukee. It will have a triple discharge and will furnish water to the mill, 2,200 ft. distant, through a 30-in. pipe.

Quincy.—This company's copper output for May and 5 months is: May, 737 tons; 5 months, 3,798 1/3 tons.

Copper—Keeweenaw County.

(From Our Special Correspondent.)

Phoenix Consolidated.—This mine has shipped a car containing 12 barrels of barrel copper and the rest mass copper to the smelters. The copper must be hauled from the mine to the Calumet railroad yards.

Copper—Ontonagon County.

(From Our Special Correspondent.)

Mass Consolidated.—The new stamp mill is to contain 2 stamps, only one of which will be installed at first. The ground dimensions of the mill will be 95 by 200 ft. The foundation is being laid for a 40-drill Rand compressor which is expected any day.

Nonesuch.—This mine, in the Carp Lake District, will likely be opened up this summer by Cleveland parties, who contemplate driving a tunnel, starting near the lake, to be 6,600 ft. long. It is estimated that the cost of such a tunnel would be from $75,000 to $100,000.

Iron—Marquette Range.

The United States Supreme Court has handed down a decision in the case of the Pittsburg & Lake Angeline Company vs. the Cleveland-Cliffs and Lake Superior Companies. The case grew out of the draining of Lake Angeline by the joint agreement of the companies. The Pittsburg & Lake Angeline Company claiming more of the iron ore underlying the lake than the original agreement provided for. The company's attorney put in a plea regarding riparian rights, the lake not being navigable water and raised some very intricate questions regarding the lake bed. Circuit Judge Stone decided some years ago that the original agreement was valid, and that the Lake Angeline Company could not carry its mining operations farther out in the lake without trespassing upon the lands of the other two companies. The case was carried to the Michigan Supreme Court in this State, where the decision of the lower court was affirmed. The decision of the United States Supreme Court is that it has no jurisdiction in the case. The effect of the decision is a defeat for the Lake Angeline Company.

MINNESOTA.

(From Our Special Correspondent.)

Orders have been issued to the various ships of the Bessemer (Rockefeller) fleet that are running without contracts to tie up unless they can get ore loads at $1.25 a ton. This is done in order to keep prices for ore from the head of the lake to Lake Erie at the flat rate of $1.25 a ton fixed by the Rockefeller interest last fall. There are understood to be about 2,000,000 tons of room held by the Bessemer Company in excess of its actual requirements. Those, however, with whom the company has agreements for ore-carrying are affected unfavorably. The chief of these is the Carnegie Steel Company.

Iron ore shipments to June 1st have been more than 700,000 tons in excess of the amount to the same date a year ago. The season started a week earlier, but the volume has been far greater than in the history of the trade. The shipments of the season to date have been as follows by ports:

	1899. Tons.	1900. Tons.
Duluth	344,822	669,681
Two Harbors	470,000	707,000
Superior	85,969	227,889
Total	900,791	1,604,570

Iron—Mesabi Range.

(From Our Special Correspondent.)

P. H. Rahilly has leased to O. D. Kinney and Geo. C. Howe of Duluth 160 acres of land in T. 58, R. 20, that they have explored during the year. The lease calls for a minimum output of 100,000 tons per annum after 1903 and a royalty of 20c. a ton. An advance royalty was paid down.

Ore has been found on a State lease in the northwest corner of 11, T. 58, R. 18, which is being explored by Miller & Brown. They have found some 6,000,000 tons in a nearby deposit.

Congdon & Hartley have found a large mine on the Jeffries' 160 in 10, T. 58, R. 18, where they have been exploring for some months, at an expense of about $10,000. The ore is of quite low grade, however. They have an option of buying the land for $50,000 or of leasing at 15c. a ton, expiring July 1st, next.

A. Harrington, F. A. Brown and others have leased 600 acres of land in the mineral belt near the village of Virginia from the St. Paul & Duluth road, and are exploring with a chur drill. So far nothing of value has been found.

Ore has been found on a state lease in the northwest corner of 21, T. 58, R. 19, close to the Edmundson claim, belonging to the Lake Superior Consolidated Mines. It will be opened at once.

Fayal Iron Company.—This company's mine is shipping at the rate of 10,000 tons a day. The mine is working 3 steam shovels now, day and night. Three hundred car-loads of ore are sent out daily.

Union Ore Company.—This mine, a new property, is starting a 4-compartment shaft, 7 by 19 inside timbers, and has three 8-hour shifts at work. The mine will be under charge of E. H. Parmalee, manager of the Republic properties adjoining. The Union is the property of the Republic and American Steel Hoop, and a royalty of 40 cents a ton must be paid for the ore to be taken out for a considerable period. It will be a large shipper, as the ore is very desirable.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The ore market is in the most unsatisfactory condition known for months. The highest price paid for zinc ore was $29 per ton for one small lot on the Independence lease at Joplin, and outside of this $28 was the top for the high-grade ore at Oronogo and elsewhere. Lead was unchanged all the week at $22.50 per 1,000 lbs. Buyers announced another cut of $1 this week.

During the corresponding week last year, top grade zinc ore sold at $49.50 per ton and lead at $26 per 1,000 lbs. The lead sales were less than last week by 344,080 lbs., the zinc sales were greater by 662,530 lbs., and the value greater by $94,389. For the first 22 weeks of last year the sales were less by 52,930 lbs. of zinc and 5,128,900 lbs. of lead, but the value was greater by $1,039,231.

As compared with the preceding week, the lead sales were less by 200,210 lbs., but the zinc sales were greater by 531,280 lbs., and the value was greater by $8,260. Following is the turn-in by camps for the Joplin District for the week ending Saturday, June 2d:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,396,150	560,590	$44,865
Galena-Empire	2,319,890	188,420	34,368
Carterville	1,951,780	259,240	32,182
Aurora	990,000	21,710	14,517
Oronogo	648,640	3,920	8,596
Webb City	261,430	93,650	5,375
Belleville	654,790	2,600	8,573
Duenweg	88,540	55,810	1,915
Carthage	250,430	.....	3,021
South Jackson	311,370	48,540	5,440
Cave Springs	341,520	9,430	4,652
Central City	90,680	2,080	1,225
Stotts City	240,290	.....	3,364
Granby	295,000	11,000	3,800
District total	10,840,510	1,259,890	$171,634
Total 22 weeks	215,705,130	25,243,230	$3,860,876

The slump in the price of ore does not seem to affect the transactions in mines and mineral lands to any extent, and plans for the formation

of big companies are being carried out, the promoters believing that properties can now be acquired for much nearer their actual value than some months ago. Among the large deals now being completed is an Anglo-American syndicate with a capital stock of $10,000,000 to consolidate some of the best producing properties in the district. Local men are largely interested and the plans of the company are that it may be one of the most successful ever attempted here. Henry Seeley, of London, is in Joplin looking after the financial end of the deals and the engineer will have his final reports ready by the last of next week. Among the large properties considered are the Southside at Galena, the Rubber Neck at Neck City and others, for which the syndicate will pay something like $3,000,000. It has turned down property valued at $2,000,000 after examination, and some men, consequently, have tried to put obstacles in the way of the company, but these efforts have proven abortive.

New Mining Companies.—The Four Thousand Acre Zinc and Lead Mining Company has been incorporated with $1,000,000 capital by D. Henry, C. W. Stoner, Reuben Fink, E. A. Schaefer and others, all of South Bend, Ind. The Greyhound Zinc and Lead Company, composed solely of St. Louis parties, with offices and headquarters in that city, has been incorporated with a capital of $240,000. The Itasca Land and Mining Company of Joplin has been incorporated with a capital of $30,000. The principal part of the stock is held by Capt. Frank Eberle of Joplin. The Buffalo Zinc and Lead Mining Company has been incorporated for $100,000 by Buffalo, N. Y., and Joplin parties, who will operate in the Joplin District. The Little Widow Mining Company of Joplin has been incorporated with $40,000 capital. The incorporators are Charles B. Glover and Mary E. Edmondson of Joplin, Wm. M. and Alice X. Smith of Carthage, Clyde A. Bryant and Chas. Coble of Drexel, Mo.

MONTANA.

Broadwater County.

(From Our Special Correspondent.)

Diamond Hill.—Sixty stamps of the 100-stamp mill are dropping. Want of water is all that keeps the rest of the mill hung up.

East Pacific.—The differences between the Winston Miners' Union and R. A. Bell having been adjusted, matters are again running smoothly. About 40 men are at work.

Indian Creek Placers.—J. B. Wilson of Helena is putting in a flume on bedrock; 3 reservoirs are completed and 1,200 ft. of 36-in. flume built.

Iron Mask.—J. E. Krouse of Townsend has given a 2 years' lease and bond for $10,000 to P. E. Hall and F. H. Stafford of Helena. The shaft is to be pumped out and sunk to the 600-ft. level.

Keating.—Both the Blacker & Keating interests in this property are being worked in blocks by tributers.

Ohio.—John Keating of Radersburg has resumed shipments of iron sulphides to East Helena.

Lewis & Clark County.

(From Our Special Correspondent.)

Greenhorn Placers.—Wm. Coyne of Helena, who owns this ground, has 2 hydraulics at work piping. The first clean-up of $3,000 has been made.

Missouri River Dredges.—Joe P. Widener has a man on from the East to get the 2 boats built at French Bar last season, ready for the season's run. These dredges are of the dipper type.

McCune's Bar.—An option has been acquired for Eastern parties on the 400 acres comprising this property. The intention is to put in one or more Ibie gold mining dredges. The ancient channel of the Missouri River runs through the ground.

Ozaukee Mining Company.—This is a new organization, capitalized at $100,000, which will develop property it has purchased in the northern part of the county. The members are Wm. Stowe, J. P. Schmidtt and Geo. Blakenbuel.

Travace Diggings.—Geo. Travace of Rimini has men operating 2 giants at these diggings on Ten Mile Creek, ½ mile below Rimini.

Madison County.

(From Our Special Correspondent.)

Bamboo Chief.—This claim, 1 mile west of Virginia City, owned by George Thexton, was turned over to James Whitaker under a $10,000 bond. Four men are at work cleaning up. It is claimed there is a large tonnage of $20 ore blocked out which can be milled at a profit.

Elfleda.—A 50-ton shipment has just gone to the smelter from W. H. Wright of Virginia City. Mr. Wright has 15 men at work in the stopes, and sufficient ore blocked out to make continuous shipments for some months. The second-level tunnel has 3 ft. of shipping ore in the face, and some very rich gold rock is coming from the bottom of the new shaft.

German Bar Mining Company.—The dredge "Maggie A. Gibson" has started work. The boat has been completely overhauled, and is now working without a hitch. The "Gordon" is also running. The largest nugget dug up by the boats so far was a $3 scad picked up last week by the "Gordon." It is the largest piece ever found in the vicinity, and has renewed speculations as to the source of the gold on the Courey farm.

Kersarge.—This property at Summit, owned by C. E. Damours, is to have a combination mill and concentrator built during the summer to handle the bodies of low-grade ore.

Navajo.—At this mine, 4 miles from Virginia City, Walker & Reed have the new shaft down 120 ft. A 20-ton shipment has been made to the smelter. The ore body is 300 ft. long, so far, with an 8-in. pay-streak.

Silver Bow County.

Judge Knowles, of the United States Circuit Court, handed down his decision June 2d in the case of the Colusa-Parrott Company, owned by ex-Senator W. A. Clark and the Anaconda Company. The action related to the union of the vein of the Colusa-Parrott Mine between the 800 and 1,000-ft. levels of the mine with that of the Anaconda Mine. The suit was to recover ore that the Anaconda had extracted from the part below the alleged union. The court finds for the Anaconda Company, holding there are 2 distinct veins.

Amalgamated Copper Company.—At the annual meeting in Jersey City on June 4th, the stockholders re-elected the retiring board of directors as follows: Marcus Daly, H. H. Rogers, Wm. Rockefeller, James Stillman, F. P. Olcott, Robert Bacon, A. R. Flower and A. C. Burrage. No financial report was submitted.

Minnie Healey.—Receiver E. H. Wilson says he is now only shipping enough to meet the payroll and bills. He is employing about 70 men and sinking the shaft from the 650 level. He is working his pumps, drills and an underground hoisting engine by compressed air.

Parrot Silver and Copper Company.—At the annual meeting in Butte directors were elected as follows: Marcus Daly, Charles Burrage, Charles H. Dickey, Sidney Chase, A. W. Bemis, E. G. Story and R. D. Wilkie. Of the 200,000 shares of stock 195,000 were represented at the meeting. The directors will hold a meeting in New York in a few days to elect officers.

The only report made to the stockholders was a general financial statement submitted by General Manager Gallwey for the year ending April 30th. The annual report, if such it may be called, states that on May 1, 1899, the company's surplus stood at $1,890,964, and that net earnings during the year ended April 30, 1900, were $884,370, while dividends paid on the company, 229,850 shares were $1,371,099, or $486,000 more than the net earnings. The surplus at the end of the year was reduced to $1,404,235. Parrot stock therefore earned $3.84 per share against $6 paid.

NEVADA.

Storey County—Comstock Lode.

Silver Hill Mining Company.—At the annual meeting in San Francisco the following directors were elected for the ensuing year: W. E. Lester, H. B. Goodwin, Charles Hirshfield, Thomas Cole and Charles E. Elliot. W. E. Lester and H. B. Goodwin are new directors who were elected in the places of C. E. Olney and D. E. Bates, who resigned. The old officers were re-elected as follows: Charles Hirshfield, president; Thomas Cole, vice-president; Charles E. Elliot, secretary; and A. C. Kyle, superintendent. A resolution was adopted authorizing Charles Hirshfield, president of the company, to make a satisfactory contract for the sale of the low-grade ore in place in the Lucerne portion of the old Silver Hill ground, as an offer for the ore has been submitted by the Nevada Reduction Works.

NEW MEXICO.

Santa Fe County.

Cochiti Mining Company.—At the annual meeting the following directors were elected: Joseph A. Coram, L. T. Trull, E. L. White, T. E. Hopkins, O. P. Posey, O. E. Weller and R. Whelan. No statement was given out.

PENNSYLVANIA.

Anthracite Coal.

A case of some importance to all anthracite coal mining concerns ended June 4th, after 2 weeks' fighting, in a verdict of $32,708 damages for Joseph Stevenson. The defendants were the Ebervale Coal Company, Jeddo Tunnel Company, Cross Creek Coal Company, Jeddo Coal Company, George B. Markle, Pardee & Company, A. S. Vanwickle, Lehigh Valley Coal Company, Linderman & Skeer, Black Ridge Coal Company, M. S. Kemmerer & Company, and Coxe Brothers & Company. In 1890 the companies finished the Jeddo Tunnel under 2 miles of mountain and drained thousands of acres of coal workings. This water was run off into Nescopec Creek, and along this creek Joseph Stevenson had a mill. He claimed that the mine water washed down culm and coal dirt, which polluted the stream, making it unfit for domestic or commercial use. The late Eckley B. Coxe, recognizing the damage done Stevenson, attempted to effect some settlement. Before this point had been reached he died, and the matter went into the hands of his executors. They were unable to effect a settlement and the suit followed. The verdict is liable to result in other suits.

Bituminous Coal.

Cochran Coal and Coke Company.—This company of Dawson recently purchased 300 acres of coal and 108 acres of surface land on Crab-apple Creek, in Fayette County. The price paid was $160,000. The land was purchased to complete a field. The Cochran Coal and Coke Company is affiliated with the Washington Coal and Coke Company, miners and shippers of Youghiogheny coal and Washington coke, with general offices in Dawson, and sales office in Pittsburg.

PORTO RICO.

Spanish-American Mining Company. — This New York company, with $10,000,000 capital, is preparing to mine iron ore in the Naguabo Valley north of Juncos. The ore will be shipped from Encanado Honda south to Fajardo on the east coast of the island, and a standard gauge road is projected to connect the mines and port. It is said that the road will be equipped with steel 50-ton ore cars and that the pier will be of the best construction. The ore is stated to be low in both sulphur and phosphorus. The officers of the company are: President, Jose Santislebon; treasurer and general manager, Chas. Efros; resident director, Ramon Latmer; vice-president, F. C. Travers; secretary, Benjamin Tuska; attorney, Joseph B. Dill.

SOUTH DAKOTA.

Lawrence County.

(From Our Special Correspondent.)

Boston-South Dakota Company.—Joseph Underwood of Boston has been in Deadwood making preparations to start up the mine and mill in Blacktail Gulch. The mill has been increased to 40 stamps.

Cleopatra Mining Company.—The new cyanide plant at the Cleopatra Mine on Squaw Creek is nearly completed and miners are treating ore. R. B. Hughes of Spearfish is general superintendent.

Ella Eldon.—The first shipments of ore from this mine, in Grizzly Gulch, are made to the smelter in Deadwood. A contract has been let for 100 ft. more of shaft and tunnel. E. W. Miller of Elk Point is general manager.

Gladiator Mining Company.—Officers of this company have arrived in Deadwood from Des Moines, Ia. Work will begin on the company's ground in Deadwood Gulch immediately.

Golden Gate Mining Company.—This company has purchased the Kicking Horse Mine at the head of Blacktail Gulch, which was recently purchased by the Northwestern Gold and Silver Extraction Company. The mine has been furnishing 50 tons of ore daily to the cyanide plant in Deadwood. D. C. Boley of Chicago promoted the deal. The officers of this company are: President, D. W. Campbell, Chicago; vice-president, H. H. Pennington, Chicago; secretary, Paul Brown, Chicago; general manager, A. H. Loyd, Deadwood; treasurer, C. S. Owen, Deadwood.

Shawmut Gold Mining Company.—This company has purchased the Story Brothers' Mine, an old location adjoining the Esmeralda, in the Blacktail District. The company will enlarge the Esmeralda Mill. Edison E. Dewey of Boston is president.

Spearfish Mining and Development Company.—The second payment has been made on 365 acres of ground in the Ragged Top District by this company, composed of Colorado Springs men. A cyanide plant is to be erected immediately.

Wasp Mining Company.—Bids are asked for the erection of a 50-ton cyanide plant at the company's mines in Yellow Creek District.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending June 2d there were sent forward from the different smelteries 30 cars, or 1,257,840 lbs., lead-silver bullion; 4 cars, or 211,140 lbs. copper bullion. In the same week there were shipped to smelteries outside of the state from the different camps 68 cars, or 2,598,500 lbs. lead, silver and gold ore; and 2 cars, or 97,400 lbs., copper ore.

Cyanide Products.—Consignments of products from cyaniding mills, marketed at the Salt Lake branch of the Consolidated Kansas City Smelting and Refining Company, in May amounted to $81,-300. Leaving out the De La Mar Mercur product this is a little larger than for May, 1899.

Lead Producers' Meeting.—Messrs. Bamberger & McMillan have issued a call for a meeting of Utah lead producers on June 6th to consider what steps, if any, should be taken in view of the unsatisfactory status of the lead market. It is said similar meetings are to be held in Idaho, Colorado and Missouri. An intimation is abroad that lead production will be curtailed. Should this occur it will be a serious matter with the western smelters, which depend on lead ores to handle the dry gold and silver products.

It is almost a settled fact that the site for the

new plant of the American Smelting and Refining Company in Salt Lake Valley will be near the Mingo smelter at Sandy. Mr. A. Raht is to be here next week and will have charge of construction.

Utah Consolidated Smelter Enlargement.—George K. Fischer, who for over a year has been at Silver City, New Mexico, is instructed to prepare the plans. He will be in Salt Lake in a few days. The enlarged plant will treat 500 tons of ore daily.

Carbon County.

(From Our Special Correspondent.)

Pleasant Valley Coal Company.—On May 28th Winter Quarters No. 4 started work with 200 miners. No miner will be allowed to have more than 6 lbs. of powder in the mine at one time. The coal company, in connection with the Rio Grande Western, is making an investigation of the recent explosion. The other mines of the company are working a full force.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—In the week of June 2d there were sent forward from the 3 railroad points of the district 132 cars of ore and 2 cars of concentrates, contributed as follows: Centennial-Eureka, 47 cars; Mammoth, 24 cars ore, 2 cars concentrates; Grand Central, 16 cars; Bullion-Beck, 12 cars; Gemini, 10 cars; Ajax, 7 cars; Godiva, 5 cars; May Day, 3 cars; Carisso, 1 car; Swansea, 1 car. This is the banner week for a considerable period. During May the shipments were 543 cars of ore, or about 12,500 tons, 14 cars of concentrates and 5 bars of bullion.

Carissa.—Exploration is suspended. It is said that the owners have tied up the Northern Spy territory adjoining, and in future Carissa ground will be developed through Northern Spy workings.

Centennial-Eureka.—For the week of June 2d the shipments aggregated 1,300 tons, the banner record. Production for May was about 3,900 tons. Superintendent Allen reports exploration uncovering more ore than is being marketed.

Eureka Hill.—A general overhauling is taking place in the mill. It is probable that within a month it will be put in commission for a year's campaign.

May Day.—While the last discovery is proving of less magnitude than at first seemed probable, it has opened into a strong ore chute. Three cars of high grade will be marketed in a few days, 1 of which will go better than $15,000 for the lot.

Mammoth.—The rumored close down on June 1st failed to occur. Assistant Manager Donohue's resignation lacks foundation. He reports the most recent ore find being 180 ft. south of the Betsy slope, which was a record breaking producer, where a winze is in heavy lead-silver ore for 16 ft.

Salt Lake County.

(From Our Special Correspondent.)

Dalton & Lark.—All indications are that the Farnsworth option will be taken up.

May Ore Output for Bingham.—May made a new record for Bingham, the total output being 9,700 tons.

United States.—It is an open secret that Duncan McVichie will have charge of the company's properties and will start in to organize his staff in a few days.

Utah Consolidated.—In May 7,000 tons of ore were sent over the Bleichert wire tram to the railroad, the largest output in the history of the mine. There is sufficient ore ahead at the smelter not to retard operations. The mine continues to show handsomely. Last month there were 10 cars of copper matte, carrying good values in gold and silver, shipped from the smelter.

Yampa.—Colonel E. A. Wall has resumed exploration.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—For the week ending June 2d the total smelter products shipped from the camp was 3,139,355 lbs., made up as follows: Silver King, crude, 1,065,450 lbs.; Daly West, concentrates, 772,035 lbs., crude, 296,000 lbs.; Ontario, crude, 603,060 lbs.; Anchor, concentrates, 402,810 lbs.

California.—Sufficient medium and low grade ore is brought to light to warrant building a concentrating plant for this property, at the head of Thayne's canyon. A Huntington mill and 2 Wilfley's will form the main equipment at first.

Crown Point vs. Ontario.—This is an apex contest and a claim is set up that $2,000,000 worth of ore was mined by Ontario which properly belonged to Crown Point. Brown & Henderson and Dickson, Ellis & Ellis are the attorneys for the Crown Point, with Charles A. Brown, Henry M. Crowther, R. C. Gemmell, Dan McLeod, E. E. Chase and Robert Gorlinski experts. For the Ontario, Bennett, Harkness, Howat, Sutherland and Van Cott are the attorneys, with Professor W. S. Keyes, George H. Robinson, James W. Neill, Charles Reed, Colonel E. A. Wall, Martin K. Harkness, W. A. Wilson and O. A. Palmer, experts.

Tooele County.

(From Our Special Correspondent.)

Chloride Point.—There is a temporary close-down at the mill for some needed betterments. Development progresses favorably. Manager Duncan expects that when the mill is again in commission it will give more economic results.

Overland.—Incline shaft is complete to 200-level. Machinery for mill equipment has begun to arrive.

Consolidated Mercur Gold Mines Company.—Under this caption the union of the Mercur Gold Mining and Milling Company and De La Mar's Mercur Mines Company is to be brought about on July 1st. The agreement to this end was signed in Paris on May 31st by President John Dern, of the Mercur Company, and Captain J. R. De La Mar. The new company will have $5,000,000 capitalization in $5 shares, of which 200,000 shares are to be set apart for treasury needs, 266,666 2/3 shares go to the Mercur holders and 533,333 1/3 represent the De La Mar interests. The "Engineering and Mining Journal" on several occasions has indicated the great advantages of this move, which cannot but prove of mutual benefit. Under date of June 1st, the Mercur directors issued a statement in which it is set forth that the consolidation will make a handsome paying property for many years, and continues:

"It is true that we have uncovered considerable ore during the last three or four months, practically all of a base character, which cannot be utilized with our present methods. The excess of ore reserves in the De La Mar's Mercur mines, and the fact that they have a very large and expensive plant of capacity sufficient to work all the ores of both mines induced us to arrive at the basis of consolidation which we have, viz.: one-third to the stockholders of the Mercur Gold Mining and Milling Company, and two-thirds to the stockholders of the De La Mar's Mercur Mines Company.

"The Golden Gate plant consists of a fire-proof mill, built throughout of steel, all the machinery being of the latest design. The mill is of a capacity sufficient to treat 1,000 tons daily. The consolidation of these properties will not necessitate a single change in machinery or equipment, the plant being ample in every way.

"In this consolidation all the property owned by the De La Mar's Mercur Mines Company and J. R. De La Mar personally in Tooele County is included; this includes one-half of the stock and management of the Gold Belt Water Company, which supplies with water the town and the various mills operated at Mercur. This also includes the De La Mar electrical power plant, which is to be finished at the cost of the De La Mar Company, and placed complete in the hands of the consolidated company.

"As the reorganization company covers a large area of territory and vast operations, we have concluded that the most suitable name of the reorganized company will be 'Consolidated Mercur Gold Mines Company.' There will be seven directors in the reorganized company, of which the De La Mar interest will have four and the Mercur interest three. It is proposed that J. R. De La Mar be president and John Dern vice-president of the reorganized company."

WEST VIRGINIA.

Miners are very scarce in the Kanawha Valley and many of the coal mining companies are importing them from neighboring States.

FOREIGN MINING NEWS.

AFRICA.

Rhodesia.

The Rhodesia Chamber of Mines reports the gold output in April at 5,456 oz. This makes a total for the four months ending April 30th of 23,217 oz., against 25,164 oz. in 1899; a decrease of 1,947 oz., or 7.8%, this year.

AUSTRALASIA.

New Zealand.

(From Our Special Correspondent.)

The value of the gold exported from New Zealand during April was £76,882 ($384,410), much below the average. The decrease is not due to a diminished output, but to the banks making smaller shipments. The export of silver for April was valued at £2,944 ($14,720).

Dredging.—According to the "New Zealand Mines Record" there were on March 31st, in Otago and Southland, 79 dredges actually working, 12 not at work, undergoing removal, or under repair, and 105 building. During the four weeks ending April 30th the published returns of the Otago dredges show that 33 dredges obtained 3,578 oz. of gold, equal to a weekly average of 27 oz. per dredge. The highest week's return for a single dredge was 320 oz., obtained by the electric dredge "Cromwell." The Harley & Riley dredge also had some good returns.

It is stated that on the west coast of the South Island nearly 2,000 dredging claims have been pegged out, but it is pretty certain that the pegging of claims has been vastly overdone, both here and in Otago, and that many an investor will come out with more experience than capital.

Tasmania.

Mount Lyell Mining Company.—For the four weeks ending May 2d this company reports 20,787 tons ore smelted, the yield being 777 tons black copper, containing 768 tons fine copper, 49,390 oz. silver, and 1,797 oz. gold. This is an average of 3.7% copper, 2.38 oz. silver and 0.09 oz. gold to the ton.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland.—Ore shipments. The output of ore from Rossland mines for the 5 months ending May 31st amounted to 54,000 tons, as against 51,000 tons for the corresponding period of 1899.

Le Roi.—The management is shipping from 15 to 20 cars daily to the Northport smelter, and a night train shift is not improbable as the output is to be further increased.

War Eagle.—The upper ore bunkers, near the main hoist, were destroyed by fire May 27th. Loss $10,000. The origin of the fire is not known. The bunkers had a capacity of 10,000 tons. New bins, having a capacity of 2,000 tons, will be erected immediately.

Nova Scotia—Cape Breton.

Dominion Coal Company.—This company reports shipments of 183,000 tons of coal from its mines in May. For the three months of its fiscal year, from March 1st to May 31st, the shipments were 419,000 tons, against 237,835 tons in 1899, and 175,687 tons in 1898.

Ontario—Algoma District.

The first of the 4 steel ships built at Sunderland, Eng., for the Algoma Central Company, has arrived on Lake Superior and for the present will be in general trade. When the Michipicoten mines of the Clergue syndicate are ready this ship and her consorts will carry ore from Michipicoten to Midland and other points in eastern Canada. The ship will be entered under Canadian register and renamed the "Gargantua." These 4 will be followed next year by 4 more, and the cargo capacity of the 8 will average 2,800 tons on 17 ft. draft. They are built to pass the Canadian canals to Montreal, and in the winter will be in Atlantic service.

Lake Superior Power Company.—Powell & Mitchell of Marquette, Mich., have the contract for mining ore and have begun work. The company's Helen Mine lies about 12 miles north of Michipicoten Harbor and is called one of the greatest deposits of hematite and limonite ore yet discovered. The ore will be shipped by the Algoma Central Railway to Michipicoten Harbor, where docks are being constructed. Most of the ore will go to Canadian furnaces. By recent action of the Canadian Government prospectors who staked out iron claims in the Michipicoten mining division after the land was withdrawn from the lease or sale are to be allowed to register it.

Ontario—Rainy Lake District.

(From Our Special Correspondent.)

Golden Star.—This mine is sinking a second shaft on a new vein and is down some 45 ft. with an average value of about $26 to the ton. The vein is mineralized with galena and blende.

Hammond Reef.—The mine and mill are shut down, under quarantine, on account of the appearance of smallpox. The mill had just started.

Olive.—This mine has improved very much in appearance and some fine ore bodies have recently been cut.

Randolph.—The mine has closed down. It is stated by the management that the shut down is very temporary and is due to the non-arrival of some piping that was not forwarded in time to get in over the ice last winter, and to the lack of some wire rope.

CUBA.

Cuban Steel Ore Company.—This company is developing iron mines and building a railroad from the mines to Daiquiri, west of Santiago. The directors met in Philadelphia recently and elected Evans R. Dick, president; Luther S. Bent, vice-president, and Josiah Monroe, secretary and treasurer.

SOUTH AMERICA.

Argentine Republic.

According to a recent official note published by the Bureau of the American Republics, the mining industry of the northwestern province of the Republic is being developed to a greater extent than ever before, under the supervision of syndicates composed of Belgian capitalists. In the Province of Rioja, near Famatina, a valuable concession of land has been obtained by a Belgian company, which will mine for silver and lead that exist in large quantities. The company working in Nonogasta reports a very successful year in 1899, and that it has purchased more property, some of which contained veins of silver.

A syndicate has been formed in Brussels, with a capital of $2,000,000 gold, for the purpose of exploiting the borax deposits in the provinces of Jujuy and Salta. The product will be exported to Europe. During the past few months the export of minerals from Rioja has included 42,323 kgs. of copper. One Belgian company has expended 300,000 fr. in the acquisition of machinery, which has been ordered from Europe.

In the province of Jujuy borate fields are being worked, several concessions having been granted recently, but up to January 1st only 120 tons had been marketed. The copper mines in Tilurrer, the silver mines of Santa Rosa, and the coal and petroleum mines in San Pedro are all being developed.

In Mendoza and Cordoba some very fine marble quarries have been discovered; in Salta there are good borax and also copper mines; in Catamaria, gold and silver have been discovered; in the Cuyo Provinces in the north various mining interests are being developed, and in San Juan the old mines, with new and modern machinery, are giving good results, especially the gold mines of Morador.

COAL TRADE REVIEW.

New York. June 8.

Anthracite.

The outlook for the balance of the year in the anthracite trade is decidedly favorable, though dullness prevails at present. The estimated output for May is 3,800,755 tons, an increase of 243,061 tons over May, 1899. For the first 5 months of this year the output is put at 17,863,573 tons, an increase of 1,238,853 tons over 1899. The May output, in view of the efforts to keep down production, is larger than was expected. Still, we hear of no large accumulations of coal at any one point, and this fact is the basis of our expectations that the mines will have employment for all the men they can get when fall buying is fairly started. The continued exodus of miners to the bituminous field when steady work is offered, and possible labor troubles may make it difficult for the companies to fill orders promptly this fall. Consequently now would seem to be a good time for consumers to stock up. Trade in Chicago territory is fair for this season of the year. At the head of the lakes there is little doing. The movement of coal from Buffalo is fair. At Boston, New York and Philadelphia things are pretty quiet. The promoters of the Delaware Valley & Kingston Railroad seem to have quieted down a bit and the individual who offered to build 13 miles of road at his own expense shows no signs of beginning construction. There is plenty of litigation in sight for the promoters if they are in earnest.

We continue to quote free burning anthracite f. o. b. New York as follows: Broken, $3@$3.20; egg, $3.25@$3.50; stove, $3.45@$3.70; nut, $3.45@$3.70; pea, $2.40@$2.60; buckwheat, $2@$2.20.

Notes of the Week.

The Schuylkill Coal Exchange states that its drawn to return rate on stove coal sold in May was $2.46 and the rate of wages for the last half of May and first half of June is consequently 1% below the $2.50 basis.

Bituminous.

The demand for bituminous coal in the Atlantic seaboard bituminous trade continues fair, but consumers find no trouble in getting all the coal they want outside of a few of the best grades. We hear of continual shipments of coal on export orders, and this foreign trade is fast developing from a condition of inquiries to actual business. The coal shipped to European ports seems to be pretty well distributed. It is going to Sweden, Germany, Spain, Italy and other countries.

There is nothing new in the George's Creek strike. The miners had voted to return to work Monday but renewed efforts by the labor organizers stopped the movement, though the men can make the best wages in many years. Both operators and miners are now waiting for somebody to get tired of doing nothing.

Trade in the East is fairly good. There is plenty of coal offered for sale, but consumers are pretty particular and pick and choose. Along the Sound business is dull and consumers can get all the coal they need without having to hunt for it. New York Harbor trade is quiet, but all rail trade is fairly active and the best prices going are made on this business.

Transportation from mines to tide is generally fair, but poor in spots. Car supply is embargoed to certain shippers who are holding coal on cars at tidewater and is cut down to those shippers who are not prompt. In the coastwise vessel market, vessels over 1,000 tons capacity are in fair supply with rates firm. We quote current ocean freights from Philadelphia as follows: Providence, New Bedford and the Sound, 65@70c.; Boston, Salem and Portland, 75@80c.; Wareham and Bath. 80c.; Lynn and Newburyport, 90c.; Bangor, 90@95c.; Dover, $1.15 and towages; Saco, $1 and towages; Gardner, 80c. and towages. Rates are 10c. higher from Chesapeake Bay ports. We continue to quote Clearfield coal, $2.50@$2.75 f. o. b. New York Harbor ports, and $2.15@$2.40 f. o. b. Philadelphia; Cumberland, $2.25@$2.50 f. o. b. Baltimore.

Birmingham, Ala. June 4.

(From Our Special Correspondent.)

There is no change to be reported. Activity in the coal trade continues. The mines are working steadily and are having large outputs. There is a good demand for the coal and indications are that the operators can make contracts already covering a good period of next year. There is no coal being accumulated, and when the heavy demand for the fall supply comes in it will have to take its chances. Mr. Elmer Wood, of the firm of B. D. Wood & Sons, of New Orleans, the great coal dealers, was in this district during the past week and he held a conference with Assistant General Superintendent J. S. B. Thompson, of the Southern Railway, and with Mr. T. H. Aldrich, acting president of the Sloss-Sheffield Steel and Iron Company, and with Mr. W. E. Leake, general manager of the Virginia & Alabama Coal Company. It is stated that the firm of Wood & Sons have a contract which will take large quantities of Alabama coal until February 1st, 1901, and that the conference here was for the purpose of discussing a supply during next year. The mines in Walker County will be kept busy all through the summer filling orders now on hand.

Minor troubles in labor circles have been settled recently, the differences that existed for a few days between the Alabama Consolidated Coal and Iron Company, the Tutweiler Coal and Iron Company and the Sloss-Sheffield Steel and Iron Company and the United Mine Workers of America, have all been settled and the miners are hard at work. Still nothing is being said as to the expected result of the scale convention called to be held by the United Mine Workers of America of the Alabama District, Birmingham, commencing June 20th. The miners have 56 locals with a membership of between 7,000 and 8,000.

Inquiries have been made for large quantities of coal from this district for export purposes. Operators in this State are not anxious to secure export business, the domestic trade being sufficient to take up all the product now being mined. The State Mine Inspector and his assistants are being kept busy looking after their work, much attention being paid to the ventilation and operation of the mines. There were three fatal accidents within the last two weeks of the month, probably due to inexperienced men.

Chicago. June 5.

(From Our Special Correspondent.)

Anthracite Coal.—There appears but little demand for anthracite coal in and about Chicago, trade having been limited and confined to small lots for immediate delivery. The buying from out of town is of an uncertain character. Present circular prices appear to be well maintained, but from hesitancy observed on the part of dealers it would look as though lower quotations were in order, though as yet it is very uncertain. Circular prices are $5 for broken and $5.25 for egg, stove and chestnut.

Bituminous coal has not had quite the demand of last week, the call for it having slackened to some extent. The supply of all grades has been large of late and there has been a great accumulation of soft coal and naturally a decrease from the circular price.

Coke sales have been smaller and shipments larger and now there is a decided over-supply. Prices are sagging.

Cleveland, O. June 4.

(From Our Special Correspondent.)

The shipment of coal up the lakes this week has been increased materially over any period of the season. Just now there appear to be a few more boats at the south shore ports of Lake Erie than there are cargoes; but this condition is merely temporary and due to a peculiar state of affairs which it seems impossible this season to avoid. The boats appear to be moving in large fleets and to have a tendency to bunch themselves first on the lower lakes and then up above, swamping the shippers for the time being and afterward leaving them high and dry with but a scant supply of tonnage. The reports that come from the upper lakes show that more coal has been moved up so far this year than has been shipped in a similar period for years. Shippers, however, are hopeful and say they will carry up the lakes more coal this year than they have been able to move any year for a decade. The conditions as to supply of coal and tonnage have been such as to make a very strong market, but it has not been strong enough yet to allow the owners of boats to force an increase in the carrying rates. The wild freights, therefore, remain at 50c. to Lake Superior, 65c. to Milwaukee, and 70c. to Chicago.

Pittsburg. June 7.

(From Our Special Correspondent.)

Coal.—River coal men were disappointed over the expected rise. The rivers almost reached a boating stage during the week, but the high water did not hold out long enough to permit all the towboats with empty barges and coal boats to reach this port and a number are laid up a few miles below the city. There are over 20,000,000 bushels of coal loaded and ready to go out. River men seem confident that there will be sufficient water to get some of the tows shipped next week. All the railroad mines are in full operation and there is no complaint of car shortage. Prices adopted on April 1st are still in force.

Connellsville Coke.—Prices of coke have taken another drop, and furnace coke is quoted this week at $3@$3.25 and foundry coke about 25c. higher. The demand has fallen off and over 2,000 ovens have been banked. The coke manufacturers outside of the H. C. Frick Coke Company are said to be attempting to form a combination, with William Jamison, of the Latrobe Coke Company, as promoter. It is believed that deliveries for the second half of the year can be contracted for at $3 a ton or less. The shipments last week were 10,197 cars, distributed as follows: To Pittsburg and river tipples, 2,815 cars; to points west of Pittsburg, 5,132 cars; to points east of Connellsville, 2,250 cars. This shows a gain over the previous week of 558 cars.

Shanghai, China. May 3.

(Special Report of Wheelock & Co.)

Coal.—No change in Japan coal. Very limited demand for Cardiff. Australian Wollongong supplies are far in excess of requirements, and we can look for no improvement in the near future. Arrivals of all kinds of coal for the fortnight were 16,395 tons. We quote per ton as follows: Welsh Cardiff, 20.50 taels; Australian Wollongong, cargo, 13 taels, and other sorts 6.50@7 taels; Chinese Kaiping, lump, 7.50@8.50 taels; dust, 5 taels, and mixed, 5.50@6 taels; Japan all contracted for.

Kerosene Oil.—Weak; a hand to mouth business only being done. All dealers report heavy losses on recent purchases, but as stocks at the outports are not large they hope for an improvement later on. We estimate stocks as follows: American Devoe's, 715,200 cases; Russian Batum, 830,000 cases; Sumatra Langkat, 82,700 cases; total, 1,628,500 cases. We quote, per case, as follows: American Devoe's, 2.17 taels; Russian, Anchor Chop, 2.05 taels; Star & Crescent and Ram Chop, 2 taels, and horse chop, 1.99 taels; bulk oil, loose, 1.59 taels; Sumatra Langkat, 1.59 taels.

European Coal Markets.

The demand for coal and coke throughout Europe is great, and is especially pressing in France and Belgium. As a matter of interest in view of possible export trade, we give quotations below, reduced to United States money. The prices at seaports are higher, especially in Germany, where the quotation in Frankfort or Bremen would be double that at mine.

Kinds.	England.	France.	Belgium.	Germany.
Best steam.....	$5.76	$6.76	$7 33	$3.45
Seconds.....	4.56	6.56	6.17	3.25
Small coal	3.24	3.77	3.67	2.38
Run-of-mine....	....	4.26	5.40	1.80
Briquettes.....	.	6.00	....	.
Furnace coke...	6.96	7.72	....	5.00

The English quotations are per long ton of 2,240 lbs.; the others per metric ton. The quotations are usually f. o. b. at mines, and express the average prices. Special coals may bring more. The quotations are for large orders. Transportation adds largely to prices; thus in Paris ordinary house coal, lump, brings 60 fr. ($11.58) per ton.

SLATE TRADE REVIEW.

New York. June 8.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, Inches	Monson or Brooksville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	7.00	3.50	3.00	3.25	3.10	5.10	3.15	.....	
24 x 12	7.00	3.50	3.00	3.25	3.10	5.25	3.15	3.75	.....
22 x 12	7.00	3.50	3.25	3.50	3 25	5.25	3.15	3.75	.....
22 x 11	7.00	3.75	3.25	3.50	3.25	5.25	3.15	4.00	.....
20 x 12	7.00	3.75	.....	3 50	3.25	5.25	3.15	3.75	.....
20 x 11	7.00	.....	.....	3.75	3.50	5.25	3.15	.....	.....
20 x 10	7.00	4 25	3.50	3.75	3.50	5.35	3.15	4.25	10.50
18 x 12	7.00	3 75	....	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	.....	3.15	3.75	.....
18 x 10	7.00	4.25	3.50	3 75	3.50	5.35	3.15	4.00	10.50
18 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
16 x 12	7.00	3.75	.....	3.50	3.25	.....	2.95	3.50	.....
16 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
16 x 9	7.00	4.25	.....	3.75	3.50	5.35	2.95	4.25	10.50
16 x 8	7.00	4 50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	7 00	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	7.00	.....	.....	.....	.....	.....	2.85	3.75	10.50
14 x 8	7.00	3.75	3.25	3.25	3.10	5.10	2.85	4.25	10.50
14 x 7	7 00	3.75	3 25	3.25	3.10	5.10	2.60	4.25	10.50
12 x 10	5.75	....	.	....	.....	...	2.60	3.25	.....
12 x 9	5.75	.	.....	.....	.....	.....	2.60	3.25	.....
12 x 8	5.75	3.50	.....	3.00	2.80	4 85	2.60	3.50	9.00
12 x 7	5.25	3.25	.....	3.00	2.80	4.85	2.50	3.50	9.00
12 x 6	5.25	3 25	.	3 00	2.80	4.75	2.50	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof.

Roofing slate orders are coming in rather slowly, notwithstanding shading of prices by some dealers. The Maine producers have altered their prices, and quote net for wholesale quantities.

Mill stock is moving quietly at old prices.

Export business is limited, and freight rates are unchanged at 15s. to London.

IRON MARKET REVIEW.

NEW YORK, June 8, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending June 9, 1899. F'ces.	Tons.	Week ending June 8, 1900. F'ces.	Tons.	From Jan., '99. Tons.	From Jan., '00. Tons.
An' racite & Coke.	197	246,359	266	288,525	5,404,712	6,534,134
Charcoal.	20	4,925	24	6,250	113,348	162,298
Totals..	217	251,275	290	294,775	5,518,060	6,696,432

The iron market is gradually settling down to a lower and less speculative level. With Bessemer pig at $20 and steel billets at $28 in Pittsburg buyers are more disposed to come into the market; though a number are still holding back, expecting to see further concessions. Foundry irons have been rather more active, as stocks in many foundry yards are getting low.

We hear reports of mills closing down for the summer. Some of these are true, but others are started largely for effect on the settlement with the Amalgamated Association, which is now pending. The terms proposed by the association are given in our Pittsburg letter. A little bluff is expected every year when the wages discussion is on.

Export inquiries continue to come in. A large foreign business is in sight and more can be done if the parties can come to terms on prices.

Birmingham, Ala. June 4.

(From Our Special Correspondent.)

Pig iron market conditions in Alabama are favorable; shipments are steady and in large quantities. Every effort is being made to keep up the great production. There is a scarcity of raw material, coke in particular, and that commodity has advanced in prices until to-day it is bringing between $4 and $5 per ton, nearer the latter figure. The export trade is exceedingly active and much iron is being sent out of Alabama to the foreign markets.

During the past week Hattie Ensley Furnace in the Sheffield District began operation. The furnace belongs to the Sloss-Sheffield Steel and Iron Company. Lady Ensley Furnace in the same district is being repaired by the Sloss Company, and will be put in blast later on.

There is much work going on at the rolling mills, though there is considerable stock piling up. A trial export shipment has been made of bar iron, and there are hopes that a foreign trade can be worked up in this class of iron. The Bessemer rolling mill, belonging to the Tennessee Coal, Iron and Railroad Company, has been disabled for a few days now on account of a breakage in machinery. The mill employees seem to be anxious to work. The real warm weather is beginning to put in its appearance, but so far there is nothing given out definitely about the mills closing for the summer and for repairs. The steel plant at Ensley and the steel wire, rod and nail mill adjoining, continue in active operation.

A plow factory is being constructed at Ensley. This plant will be supplied with steel from the big steel plant. According to contracts the plant is to be up in 60 days, and the promoters propose to have the plant in operation within 120 days. The Birmingham Southern Railroad is now laying tracks for the new factory. The big iron pipe plant at Bessemer belonging to the United States Cast Iron Pipe and Foundry Company is still in operation, notwithstanding the shutting down of plants belonging to the same company at other places.

Buffalo. June 6.

(Special Report of Rogers, Brown & Company.)

There is practically nothing new to report as far as sales and prices are concerned. Lower quotations do not seem to bring business, and sellers generally have settled down to waiting till business is offered. In the absence of sufficient sales to establish prices, we quote those mentioned a week ago, on the cash basis, f. o. b. cars, Buffalo: No. 1 Strong Foundry Coke Iron, Lake Superior ore, $21.50; No. 2, $21; Ohio Strong Softener, No. 1, $22; No. 2, $21.50; Southern Soft, No. 1, $22.50; No. 2, $21.50; Lake Superior Charcoal, $25; Coke, Malleable, $22.

Chicago. June 5.

(From Our Special Correspondent.)

Pig Iron.—Small orders are the main feature of the present market. It is wholly a market where consumers are buying for imediate wants and no more, evidently looking with suspicion at present conditions. Prices are beginning to appear a little uncertain. Both Northern and Southern irons are being sold at a shade under quotations. Quotations are as follows: Lake Superior Charcoal, $24.50@$25.50; Local Coke Foundry, No. 1, $22@$22.50; No. 2, $21.50@$22; No. 3, $21@$21.50; Local Scotch, No. 1, $22@22.50; Ohio Strong Softeners, No. 1, $23@$23.50; Southern Silvery, according to silicon, $25.50@$27; Southern Coke, No. 1, $22.35@$22.85; No. 2, $21.35@$22.85; No. 3, $20.35@$20.85; No. 1 Soft, $22.35@$22.85; No. 2 Soft, $21.35@$22.35.

Cleveland, O. June 5.

(From Our Special Correspondent.)

Iron Ore.—A report that has been current here for some time was confirmed to-night by a story from Duluth. It is to the effect that it is the intention of the Bessemer Steamship Company, which is controlled by John D. Rockefeller, to withdraw a major part of the whaleback fleet from the ore-carrying trade in order to boom the freights with a view to increasing the average going rate. Mr. Rockefeller has a contract to carry Carnegie's ore at the average going rate of the year, and the move is made, so goes the story, to make Carnegie pay more. Rockefeller, either by purchase or by charter, controls about all of the tonnage usually alloted to the movement of ore and has enough to bring down the entire output of the mines this season. If, therefore, he desires to withdraw a part of the tonnage he has it in his power to make the demand so strong for boats to carry wild cargoes of ore that it will push the rates up. The movement of ore this week has been steady, a few wild boats being taken at all of the chief shipping ports. The boats have been getting excellent dispatch, both at the head of the lakes and at the lower lake ports. The carrying rates remain as they have been, $1 from Duluth, 90c. from Marquette and 70c. from Escanaba.

Pig Iron.—Few or no sales of pig iron have been made this week for the reason that almost the entire output of the furnaces for the first half of the year has been disposed of. The prices have not changed, $22.50@$22 being quoted on No. 1 and $21.50@$21 on No. 2.

Finished Materials.—A few sales, aggregating about 2,000 tons of bridge material, have been made this week, but even with that the market has been decidedly weak. Prices have been marked down on several grades, and even the reduction brought but little business. It appears to be a waiting market, and buyers are buying only that stuff which they will need at once. Plates have been sold as low as 1.5c., but that is hardly the market quotation, 1.60 or 1.65 Pittsburg being nearer to it. The leading mills are quoting $35 still on billets, although some of the smaller mills have made sales as low as $28. There are rumors that bars have been sold at 1.75,, which is a break from the combination price of 2.10. This rumor is not substantiated by material evidence. On last Thursday the Cleveland Rolling Mills closed down the Bessemer plant, ostensibly for the purpose of making certain repairs. At the same time Bloomer No. 1 was shut down and Bloomer No. 2 started to take its place. Rod Mills No. 12 and No. 18 were started. These have been idle all the winter.

Philadelphia. June 7.

(From Our Special Correspondent.)

Pig Iron.—Local brokers and furnace agents preface their expression with requests to not be quoted in any way. There is an easier feeling growing out of the signs that the market is recovering its spirits. Quite a number of mill people are ready to buy at $17 for the kind of iron they want. Foundry irons are nominally $22@$22.50 for No. 14 and $21@$21.50 for No. 24, but when quoting these figures sellers say nothing is fixed. Our local buyers say that they feel safe in waiting as long as possible.

Billets.—Eastern consumers expect hereafter to be taken care of for their basic open-hearth steel from the South by the Tennessee Coal and Iron Company, which is getting into competing shape. We know that $29 is being shaded at Pittsburg.

Merchant Bar.—The talk to-day is that when some of our eastern bar mills shut down it will be for ever, as the agencies at work are bound to crowd bar iron to a level that will make it impossible for some of our rather antiquated mills to compete. At present bar iron is $1.60@$1.70 for refined. The consumption is very heavy.

Sheet Iron.—Our manufacturers report a satisfactory retail trade, but not much heavy business. New prices are expected.

Pipes and Tubes.—New and lower schedules will settle market conditions for the summer. Mills are ahead and buyers find no trouble in making satisfactory rates on deliveries.

Merchant Steel.—Until steel billets take their inevitable drop to $26 at mill there will be no fixed prices for merchant steels.

Plate.—Contrary to surmises our local trade will be kept busy this summer. Boiler work of all kinds, including engine building, is active and our leading shop and foundry people think there will be very little easing up. It is dangerous to say what plate iron and steel is worth.

Structural Material.—The bridge combine representatives give a good account of business prospects. A good deal of summer and autumn business is under consideration and the makers of structural material are showing a conciliatory disposition towards buying interests.

Steel Rails.—A few orders for heavy sections for early delivery have been sent to the mills this week. There will be no large orders placed until the horizon clears and prices settle down.

Old Rails.—Agents are crowding negotiations to meet customers' wants.

Scrap.—The demand for steel and all heavy scrap keeps prices from receding to any extent.

Pittsburg. June 6.

(From Our Special Correspondent.)

The expected cut in Bessemer pig iron prices has been made and after July 1st the price will be $20, Valley. Announcement was made to-day by members of the Bessemer Furnace Association who returned from New York where this action was taken on Monday. The new rate carries with it a corresponding reduction in prices of all other materials. Foundry iron, which began to decline a week ago in anticipation of the cut in Bessemer, will likely now take a further drop. New business is now expected to come in and prospects of a good trade are encouraging. The price of Bessemer steel billets, which have been nominally quoted at $35 since the first of the year, has been fixed at $28. A reduction amounting to about 10% has been made in tubes and casings by the National Tube Company. The McKeesport plant of this company which has been idle for two weeks may soon be in full operation again. The 19-in. and several other mills were started this morning. A representative of the combination said that with the close of the war in South Africa export business will likely be resumed, and that the outlook for the pipe trade is anything but discouraging. I am informed that the Carnegie Steel Company offered to buy 300,000 tons of Bessemer at $24 if the association would maintain that price. This was done, as the Carnegie Company has a number of contracts for finished steel based on the association price of pig iron. There is usually a dullness in the iron and steel markets at this time of the year owing to the uncertainty as to the wage scale of the Amalgamated Association of Iron, Steel and Tin Workers which goes into effect on July 1st. But little trouble is anticipated in arranging the iron scale, as the workers are not making the extravagant demands that had been expected. The conference committees are holding daily sessions here at the national headquarters preparing to meet representatives of the manufacturers to consider the demands which were decided upon at the annual convention which closed in Indianapolis last week. The base rate of $5 a ton for boiling is advanced to $5.50, and the bar iron price on which this is based was increased from 1.4c. to 1.5c. The price for boiling during the year just closing under the present scale has advanced from $5 to $6, the price for bar iron having increased from 1.4c. to 2c. Under the new scale, if it is agreed to by the manufacturers, the price for boiling when bar iron is selling at 2c. will be $6.37½ a ton. If the new scale is adopted it is not believed that the puddlers will receive any higher pay than they are now getting, as sales of bar iron for the months of May and June, it is thought, will not average more than 1.7c., and under the sliding scale this will give the puddler $6, the rate now paid when bar iron sales average 2c., for a period of two months. The only advantage the iron workers will gain by increasing the base price under the sliding system will be to prevent a reduction in wages. The sheet workers ask for a small advance, averaging about 5%, and this may be modified when the conference is held in New York next week. The tin plate workers are more extravagant in their demands, and in addition to the 6% granted this year ask for an increase on the base of the scale of 10%. It is not believed that the American Tin Plate Company will entertain this proposition and unless the demands are greatly reduced there may be trouble in the tin plate mills when the present scale expires on June 30th. The tin plate combination will also have the organization of unskilled workers to deal with. It is composed of workers not eligible to membership in the Amalgamated Association and is called the Tin Plate Workers' International Protective Association. They ask for advances ranging from 16% to 25%, but are not likely to have their demands conceded. They were granted a 10% advance for the year beginning July 1, 1899. Until these wage scales are adjusted for the year and manufacturers who operate mills controlled by the unions know the exact labor cost it is not believed that any sales of much consequence for future delivery will be made.

Pig Iron.—The price of Bessemer pig iron for

the last half of the year has been fixed at $20, Valley furnaces, which means $20.90, Pittsburg. Before the cut made by the association was announced a sale of a small lot was made at $22. No. 2 foundry iron has dropped to $18.50@$19, and gray forge is quoted at $18.25.

Steel.—The price of Bessemer steel billets has been fixed at $28, but a sale is reported at $27, and it is likely that a lower price than that fixed will rule where a desirable order can be secured. Open-hearth billets are still held at $32. Plates are down to bottom prices, tank being quoted at 1.60c. Steel bars are being cut and the price is considerably lower than 2c., the price fixed at the last meeting of the association.

Sheets.—No prices have yet been issued by the American Steel Sheet Company, and No. 28 gauge is still quoted at 3.20c. and No. 27 at 3.10c., but it is believed that lower rates can be obtained. Galvanized sheets are still quoted at 70 and 10% off, with the usual 15-cent freight allowance.

Ferro-manganess.—There is no change in the quotation of from $100@$125 for 80% domestic.

New York. June 8.

There is a chance of lower prices yet, and buyers continue to wait. In foreign trade we note recent shipments of $100,000 worth of agricultural implements to Germany, and $45,000 worth of industrial machinery and over $29,000 worth of manufactured iron to Mexico.

Pig Iron.—The local market is very unsettled. There is considerable hand-to-mouth buying, but consumers feel that prices are going lower. We quote for tidewater delivery: No. IX foundry, $21@$21.50; No. 2, $20@$20.50; No. 2 plain, $18.50@$19; Southern brands, New York delivery, No. 1 foundry, $22.25@$22.75; No. 2 foundry, $21@$21.50; No. 1 soft, $22.50@$22.75; No. 2 soft, $21@$21.50.

Bar Iron.—Demand is not very active. Common bars are quoted 1.65@1.75c. for large lots on dock; refined bars, 1.75@1.85c.

Plates.—The market still shows weakness and there is nothing to prove that bottom is reached. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.65@1.75c.; tank, 3/16-in., 1.75@1.85c.; shell, 2c.; flange, 2.10c.; marine, 2.20c.; firebox, 2.40c; universals, 1.65@1.75c.

Structural Material.—There is as yet little weakness shown in this class of finished products and prices are unchanged with a fair volume of business. The American Bridge Company will furnish the material for the underground railroad. The Carnegie Company will supply the raw material. We quote in large lots at tidewater: Beams, 2.40@2.45c.; channels, 2.48 @2.45c.; angles, 2.40c.; tees, 2.40c.

Steel Rails and Rail Fastenings.—The mills are busy and so far prices are unchanged, but the drop in billets is expected to have results. We quote for standard sections, $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.30c.; fish plates, 2.30c.; spikes, 2.70c.

Iron and Steel Pipe.—The market is decidedly unsettled. Eastern concerns have not yet decided what the new discounts shall be.

European Iron Markets.

In view of the present demand for export, some quotations in foreign iron markets will be found of interest. We give such quotations below, the figures being reduced to United States currency:

Kind.	England.	France.	Belgium.	Germany.
Foundry pig	$16.60	$24.15	$22.20	$21.90
Forge p'g	17.50	21.25	18.33	21.40
Bessemer	20.00	.....	.....	22.13
Basic pig	.....	.....	.....	21.40
Merchant bar	49.20	54.00	44.50	47.60
Angles, etc	51.60	54.00	40 50	52.40
Plates	57.60	58.00	48.25	52.40
Steel rails	36.00	.....	29.00	34.50

These quotations are in large lots, f. o. b. mills, and are generally the average prices. English prices are per long ton of 2,240 lbs.; the others per metric ton of 1,000 kgs.

METAL MARKET.

NEW YORK, June 8.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in April and year.

Metal.	April.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$1,162,484	$1,961,580	$4,595,742	$10,120,878
Imports	2,482,871	3,355,115	17,211,696	9,163,651
Excess	I. $1,320,387	I. $1,393,535	I. $12,615,954	E. $957,227
SILVER.				
Exports	4,082,567	4,112,013	18,840,100	19,118,308
Imports	1,849,231	3,266,283	9,530,969	11,331,859
Excess	E. $2,233,336	E. $845,760	E. $9,309,131	E. $7,786,44

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending June 7th, 1900, and for years from January 1st, 1900, 1899, 1398, 1897.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$2,531	$17,957	$860,703	$73,651	E. $711,626
1900..	14,372,796	1,412,045	17,154,944	1,929,732	E. 28,185,963
1899..	4,458,228	6,883,850	12,105,018	1,406,170	E. 8,271,226
1898..	4,441,939	68,914,959	15,003,762	1,750,750	I. 51,219,618
1897..	10,942,691	1,667,827	18,210,631	1,133,617	E. 26,351,868

Gold exports and imports for the week were very small. Exports of silver went chiefly to London; imports were from Mexico and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 77,000 oz. for the week. Total since January 1st, 2,226,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January	27.30	59.30	27.42	59.36	26.29	56.77
February	27.49	59 76	27.44	59.42	25.89	56.07
March	27.59	59.81	27.48	59.64	25.47	54.90
April	27.41	59.59	27.65	60.10	25.95	56.02
May	27.56	59.96	28.15	61.23	26 31	56.98
June	.....	.....	27 77	60 43	27.04	58.61
July	.....	.....	27.71	60 26	27.32	59.06
August	.....	....	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December	....	.....	27.21	58.99	27.45	59.42
Year	.....	.....	27.44	59.58	2.76	58.26

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15 58	14.26	27.07	22.48	4.68	4.18	4 65	5.34
Feb	15.78	17.02	30.58	24 20	4.675	4.49	4.64	6.28
March	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June	.....	16.89	.....	25.85	.....	4.43	.....	5.98
July	.....	17.10	.....	29.63	.....	4.52	.....	5.82
August	...	17.42	.....	31.53	.....	4.57	.....	5.65
Sept	.....	17 34	.....	32 74	.....	4.58	.....	5.50
October	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov	.....	16.49	...	28.51	.....	4.575	.....	4.64
Dec	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year	.....	16.67	.....	25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.33c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16.55c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47⅝	$ .49
Peruvian soles and Chilean pesos	.44	.46
Victoria sovereigns	4.86	4.88
Twenty francs	3.86	3.90
Twenty marks	4.75	4.88
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

In spite of lower prices in some lines and of gloomy predictions in others, general trade continues very good. The speculative markets are dull. Gold exports seem to have stopped for the present. Lower interest rates in London and an easier feeling in the foreign markets furnish the explanation.

The silver market has shown no change. Prices remain firm, closing at 27⅝d. London and 60c. New York.

Indian exchange is a little stronger and the Council bills offered in London sold at 16d. per rupee. Some silver is still going to India, both on private and Government account.

The statement of the United States Treasury on Wednesday, June 6th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	May 29.	June 6.	Changes.
Gold	$68,855,764	$70,800,879	I. $1,945,115
Silver	11 212,182	12,071,803	I. 859,621
Legal tenders	18,167,325	19,752,690	I. 1,585,365
Treas. notes, etc.	832,690	732,919	D. 99,771
Totals	$99,067,961	$103,358,291	I. $4,290,330

Treasury deposits with national banks amounted to $110,086,635, showing a decrease of $2,250,708 for the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending June 2d, gives

Imports and Exports of Metals.

Port.	Week, June 6.		Year 1900.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum.....long tons	10	**2	72	39
Antimony ore... " "	.....	**160	.....	1,340
" regulus.. " "	.....	**25	.....	560
Chrome ore..... " "				1,451
Copper, fine ..... " "	4,112	125	47,735	9,575
" matte.. " "	70	.....	1,559	40
" ore..... " "	.....	.....	.....	640
" ash..... " "	.....	.....	.....	64
Ferro-Chrome.. " "	.....	.....	.....	10
Ferro-mangan'se " "	.....	.....	.....	322
Iron ore ..... " "	.....	.....	.....	10,874
" pig, bar, rod " "	614	*327	4,665	2,310
" pipe..... " "	663	.....	7,170	124
" plates, sheets " "	108	....	880	13
Lead..... " "	1,855	125	36,399	34,581
" ore..... " "	.....	100	.....	7,600
" dross..... " "	.....	.....	.....	24
Manganese, ore. " "	.....	.....	.....	5,0o7
Metals, old, scrap " "	126	**20	1,723	4,010
Composition... " "		....	1,015	185
Nails..... " "	326	.....	11,193	.....
Nickel ..... " "	40	.....	859	61
" ore, matte " "	.....	**5)	.....	5,172
§Railr'd material " "	.....	*110	495	2,147
Rails, old..... " "	.....	..	471	518
Spiegeleisen..... " "	.....	.....	.....	1,300
Steel bars, plates " "	2,670	**340	10,064	9,383
" rails..... " "	2,490	.....	20,495	18
" wire..... " "	1,895	.....	11,016	.....
" not speci'd. " "	96	**28	3,576	1,475
Tin ..... " "	.....	5	5	12,161
" dross or ashes " "	.....	.....	.....	.....
" and black plates" "	.....	11,028	.....	16,152
Zinc..... " "	.....	.....	322	141
" dross..... " "	9	...	364	50
" ashes, skim " "	.....	.....	539	20
" ore..... " "	....	.....	8,073	.....
†Baltimore.				
Chrome ore.....long tons	.....	.....	.....	2,930
Copper, fine..... " "	1,069	.....	20,491	2,200
" matte... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	155
Iron pig, bar, etc. " "	430	373	1,966	17,634
" ore..... " "	.....	6,954	.....	223,893
" pyrites..... " "	.....	.....	.....	18,489
Manganese ore.. " "	.....	.....	.....	88,730
Metals, old & Rails " "	.....	.....	384	.....
Nails..... " "	.....	....	1,206	.....
Pipe, iron & steel " "	231	.....	2,527	.....
Silicon ..... " "	.....	.....	.....	85
Spiegeleisen..... " "	.....	.....	.....	659
Steel, bars, etc.. " "	2,193	.....	10,418	1,688
" wire ..... " "	.....	6	663	79
" rails..... " "	978	.....	43,309	.....
Tin..... " "	.....	.....	.....	111
" and blackplates" "	.....	.....	.....	1,199
***Philadelphia.**				
Antimony ....long tons	.....	.....	.....	11
Chrome ore..... " "	.....	3,000	.....	3,300
Copper, fine..... " "	217	.....	2,172	.....
" ore..... " "	.....	.....	.....	18,273
Iron, pig..... " "	.....	275	.....	555
" ore..... " "	.....	17,700	.....	49,018
" pyrites ..... " "	.....	.....	.....	87,455
Manganese ore.. " "	.....	4,045	.....	50,638
Spiegeleisen..... " "	.....	.....	.....	3,953
Tin ..... " "	.....	.....	.....	193
" and black plates" "	.....	132	.....	1,818
Zinc ore..... " "	.....	.....	1,500	.....

Total United States.§§

Articles.	April, 1900.		Year, 1900.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons	...	291	.....	822
" ore.... " "	.....	344	.....	1,074
Copper, fine, in all forms " "	‡12,764	§§3,492	59,646	17,648
Iron, pig & bar.. " "	11,427	6,950	40,40	29,595
" ore..... " "	.....	21,726	120	297,962
Iron & steel plates " "	2,389	357	9.883	4,360
Iron & steel rails " "	31,494	181	98,823	469
" " wire " "	7,993	146	27,729	599
Lead, pigs, bars & old ..... " "	44	83	324	686
Lead in ore, etc. " "	7,325	9,169	28,908	29,324
Manganese ore and oxide..... " "		23,3?8	.....	158,726
Nickel " &matte " "		229	.....	804
Nails, cut..... " "	1,238	.....	3,529	.....
" wire ..... " "	2,367	.....	14,689	.....
Quicksilver..... " "	41	.....	185	.....
Steel, billets, rods, etc..... " "	2,737	3,156	23,969	13,708
Tin..... " "	73	3,404	127	11,521
" &black plates " "	42	7,475	82	22,407
Zinc ..... " "	2,771	75	7,941	433
" ore ..... " "	1,522	.....	11,930	.....

*New York Metal Exchange returns. †By our Special Correspondent. § Not specified. §§ Monthly returns, Treasury Department. ‡ Report of Mr. John Stanton, ‖ Week June 1st. **Week ending May 29th. Exports include domestic and foreign metals.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1¼c. a lb. on lead in ores; 2½c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. on pigs and bars, 2c. on sheets etc Copper, tin and platinum are free of duty.

the following totals, comparisons being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discount	$601,618,300	$746,602,200	$800,268,600
Deposits	709,419,600	890,061,600	887,954,500
Circulation	14,730,700	13,639,900	22,459,300
Reserve:			
Specie	175,502,100	205,695,200	170,231,300
Legal tender	54,102,500	59,530,800	71,880,600
Total reserve	$229,604,600	$265,226,000	$242,111,900
Legal requirements.	177,354,900	222,515,400	221,988,625
Balance, surplus..	$52,249,700	$42,710,600	$20,122,275

Changes for the week, this year, were increases of $7,347,600 in loans and discounts, $11,344,200 in deposits, $500,000 in circulation, $3,518,900 in specie, $628,100 in legal tenders, and $1,309,950 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

Banks.	1899. Gold.	1899. Silver.	1900. Gold.	1900. Silver.
N.Y. Ass'd..	$205,695,200	.....	$170,231 300	.....
England....	150,704,280	...	165,769,775	.....
France	368,328,600	$243,572,400	407 657,015	$228,659,685
Germany...	150,180,000	77,365,000	143,895,000	74,130,000
Spain..	59,285,000	64,615,000	68,445,000	79,180,000
Aus.-Hun ..	150,065,000	52,580,000	188,395,000	46,905,000
Neth'l'ds ...	19,175,000	34,015,000	24,370 000	29,925,000
Belgium....	14,805,000	7,405,000	14,250,000	7,125,000
Italy	76,63 ,000	12,300,000	77,175,000	8,195 00
Russia	482,160,000	25,785,000	418,885,000	39,185,000

The returns of the Associated Banks of New York are of date June 2d and the others are of date June 1st, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to May 24th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£1,670,800	£2,160,660	I. £489,760
China	545,978	138,460	D. 407,518
The Straits	24,907	140,530	I. 115,623
Totals	£2,241,685	£2,439,650	I. £197,965

Arrivals for the week this year were £306,000 in bar silver from New York, £18,000 from Australia and .8,000 from Chile; total, .332,000. Shipments were £127,000 in bar silver to Bombay.

The money in the United States, on June 1st, is estimated by the Treasury Department as below as to kinds and amounts:

	Totals.	In Treasury.	In Circulation.
Gold coin (including bullion in Treasury	$1,041,531,374	$218,857,545	$618,624,530
Gold certif.	.....	.....	205,049,299
Silver dollars	487,497,976	11,374,799	67,645,528
Silver certif.	.....	.....	408,477,649
Subsid. silver	81,672,075	6,013,488	75,658,587
Treas. notes, 1890	79,440,000	803,241	78,636,759
U. S. notes	346,681,016	19,143,067	322,752,949
Currency certif.	.....	.....	4,785,000
Nat. Bank notes.	300.569,759	6,512,189	294,057,570
Totals.	$2,337,392,200	$262,704,329	$2,074,687,871

The average circulation per capita is estimated at $26.71. For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the Government. The statement of money held in the Treasury as assets of the Government does not include deposits of public money in National Bank Depositaries to the credit of the Treasurer of the United Staes, and amounting to $105,226,525. The amount in circulation shows an increase of $14,162,408 over that reported on May 1st, and of $119,186,862 over June 1st, 1899.

The coinage executed at the mints of the United States in May and the five months of this year is reported by the Bureau of the Mint as below:

Denomination	May Pieces.	May Value.	Jan.-May Pieces.	Jan.-May Value.
Double eags.	164,000	$3,280,000.00	2,488,513	$49,770,260.00
Eagles.	980,900	4,904,500.00	1,355,791	8,653,410.00
Half eagles ..	.....	.....	39,150	195,750.00
Quar. eagles	27,000	67,500 00	27,088	67,720.00
Total gold.	1,171,900	$8,252,000.00	3,910,542	$58,687,140.00
Dollars	1,5 6,000	$1,556,000.00	12,068,377	12,068,377.00
Half-dollars	816.000	408,000.00	2,544,377	1,272,188.50
Quarter-dol.	2,836,000	709,000.00	6,271,090	3,476,090.50
Dimes	4,980,000	498,000.00	8,380 377	2,488,377.70
Total sil.	10,188,000	$3,171,000.00	29,264,221	$19,305,033.70
Five c nicks.	2,731,276	136,563.80	9,966,153	498,307.65
One c. bronze	950,000	9,500.00	20,937,877	209,378.77
Total mnr.	3,681,276	$146,063.80	30,904,030	$707,686.42
Total cn'g.	15,041,176	$11,569,063.80	64,078,793	$78,699,860.12
Total 1899 .	11,225,847	$7,804,566.70	33,213,837	$68,629,893.71

As compared with April the total coinage in May, 1900, shows a decrease of $5,405,416, owing principally to the smaller gold coinage.

Other Metals.

Daily Prices of Metals in New York.

June.	Silver. Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, Pence.	Copper. Lake, cts. ₱ lb.	Copper. Electrolytic ₱ lb.	Copper. London, £ ₱ ton	Tin, cts. ₱ lb.	Lead, cts. ₱ lb.	Spelter. N. Y. cts. ₱ lb.	Spelter. St. L. cts. ₱ lb.
2	4.87 60	27⅛		16 @16⅛	15⅞	.....	29⅝	3.95 @4	4.50	4.35
4	4.87 60	....		16	15¾	.....	29¾	3.95 @4	4.45	4.30
5	4.87 60	27⅝		16	15¾	72¼	30	3.82½ @3.87½	4.40	4.25
6	4.87 60	27⅝		16	15¾	71⅝	29½	3.82½ @3.87½	4.37½	4.25
7	4.87 60	27⅝		16	15⅝ @15¾	71	29⅝	3.82½ @3.87½	4.37½	4.25
8	4.87 60	27⅝		16	15⅝ @15¾	71¼	30	3.82½ @3.87½	4.37½	4.25

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market is without special feature. Manufacturers are fairly busy, but continue to buy from hand to mouth. There has been no pressure to sell, though it is reported that stocks in the hands of producers are increasing. We quote Lake 16c.; electrolytic in cakes, wirebars and ingots, 15⅝@15¾; in cathodes, 15⅜@15½c.; casting copper at 15⅝c.

In London the market for speculative sorts has been quiet and weakish. It closed last Friday at £72 7s. 6d. for spot, £72 5s. for three months, and opened on Tuesday at £72 5s. for spot, £72 for three months. On Thursday it declined to £71 for spot, £70 7s. 6d. for three months, and closes at £71 5s. for spot and £70 12s. 6d. for three months.

Refined and manufactured sorts we quote: English tough, £76@ £76 10s.; best selected, £77@ £77 10s.; strong sheets, £85@ £86; India sheets, £82@ £83; yellow metal, 7⅛d.

Imports of copper into France for the four months ending April 30th are reported at 16,821 metric tons, against 13,797 tons in 1899; an increase of 3,024 tons, or 21.6%, this year.

Tin.—The market has been quiet, with a fair demand for small lots. Spot tin has been rather closely held, but larger arrivals have again increased the available quantities. Toward the end of the week the market declined in sympathy with the sharp decline in London. At the close we quote spot tin at 30c.

The London market, which closed last week at £137 for spot, £132 10s. for three months, opened this week at £136 5s. for spot, £131 10s. for three months. On Wednesday it was £134 10s. for spot, £129 10s. for three months, and on Thursday £134 10s. for spot, £126 5s. for three months. We would call attention to the large backwardation. On Friday £135 15s. was quoted for spot, £128 10s. for three months.

The visible supplies of tin on June 1st are reported as below, in tons of 2,240 lbs.:

	In store.	Afloat.	Totals.
London	4,114	2,807	6,921
Holland	3,035	550	3,585
U. S., exc. Pacific ports	3,590	2,330	5,920
Totals	10,739	5,687	16,426

This is an increase of 235 tons over May 1st, but a decrease of 4,059 tons from June 1st, 1899.

Imports of tin into the United States for the four months ending April 30th were: From the East Indies, 11,175,222 lbs.; Australasia, 313,656 lbs.; Great Britain and Holland, 14,093,064 lbs.; other countries, 225,366 lbs.; total, 25,807,308 lbs., against 30,384,974 lbs. in 1899; showing a decrease of 4,577,666 lbs., or 15.1%, this year.

Lead.—The market has experienced a further decline, and we quote New York 3.82½@3.87½c.; St. Louis, 3.75@3.80.

The market abroad is £17 5s. for Spanish lead, 2s. 6d. higher for English lead.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is weak and lower. Latest sales are on basis of 3.82½c. for desilverized and 3.77½c. for Missouri brands. As prices go down the demand diminishes. Buyers as a rule are unwilling to lay in supplies on a declining market.

Spelter.—A fair business has been done at the last prices, 4⅜c. New York, 4.25@4.30c. St. Louis.

In Europe good ordinaries are selling at £20 17s. 6d., specials 5s. higher.

Antimony.—We quote Cookson's 10½; Hallett's 9⅝; U. S. Star 9½@9⅝c.

Nickel.—The price continues firm at 50 to 60c. per lb., according to size and terms of order.

Exports of nickel, nickel oxide and matte from the United States in April were 515,139 lbs., against 417,797 lbs. last year.

Platinum.—Consumption has increased and prices are higher. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Imports of platinum into the United States in April were 542 lbs., against 432 lbs. last year. For the 10 months of the fiscal year from July 1st to April 30th the imports were 6,264 lbs., valued at $1,458,193, against 5,343 lbs. ($975,316) last year.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 70½c. per gram.

Quicksilver.—The New York quotation is unchanged at $51 per flask for large lots; for small orders $52.50@$54 is asked. San Francisco quotations are $51.50 for local deliveries, and $46.50@ $47 for export.

The London price continues £9 10s. per flask, with the same figure quoted from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as below:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	33@37c.	Ferro-Titanium (20%)	$1.00
No. 2, 90% ingots	31@34c.	Ferro-Tungsten (37%)	35 c.
Rolled sheets	42c. up	Magnesium	$2.75@3
Alum.-bronze	20@24c.	Manganese (over 99%)	$1.05
Nickel-alum	33@39c.	Mangan'e Cop. (2% Mn)	32c.
Bismuth	$1.6	Mangan'e Cop. (30% Mn)	38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper, red oxide	60c.	Phosphorus	45@47½c.
Ferro-Molyb'um (50%)	$1.05	Tungsten (Best)	95c.
Ferro-Titanium (10%)	90c.		

Variations in price depend chiefly on the size of the order.

LATE NEWS.

London cables report that the following despatch was received from Sir Alfred Milner, British High Commissioner in South Africa, on June 7th: "It is reported by telegram that large numbers of miners and others are about to start for the Transvaal from Southampton on Saturday. Cannot a public notification be issued warning the people against premature return here? They will be delayed at Cape ports, and will only increase the numbers supported by charity. It must be a couple of months at least before the bulk of those now in the colony and in Natal can be allowed to return or work generally can be resumed."

A despatch from Birmingham, Ala., June 7th, says: "In sympathy with the drop in Pittsburg iron the local market to-day dropped to $16 per ton for No. 1 foundry, with No. 2 at $15.50@$16, and No. 3 at $14.75@$15. This is a decrease from the highest prices paid last winter of $2 to $2.50 per ton. It is stated that general expectation is that the drop will not last long, and that an advance over to-day's prices will be the level that the market will rest at when the second half of the year commences. This, of course, will be a concession from the highest price charged last winter, but will put the European and Southern markets on a parallel, and give an activity to the export trade that is curtailed only by lack of ship room at New Orleans and other Southern ports in vessels which take pig iron on a ballast rate."

In the Supreme Court, Special Term, in New York, June 7th, judgment was given in favor of Otis S. Gage in a suit brought against him and others by the Playa de Oro Mining Company to recover 5,000 shares of the company's stock, which it is claimed were paid to Mr. Gage by the company under false representation that he had performed certain services for it. Mr. Gage was at the time of the transaction in controversy the promoter of the company, and with Charles G. Francklyn, its president, an active manager and director. Seven years ago 20,000 shares of the company's stock, including 5,000 shares owned by Mr. Gage, were transferred by the holders to Mr. Francklyn "to be disposed of by him as occasion may require for the presocution of the interests of the Playa de Oro Mining Company, and raising necessary money to carry on the business." About two years later the 5,000 shares contributed by Mr. Gage were transferred to him upon a claim he made to President Francklyn that he had rendered services and disposed of stock for the benefit of the company, thus sacrificing his own stock. After difficulties had afterward arisen within the company and Mr. Francklyn had been superseded in its management, a claim was made against the latter in reference to certain dispositions of stock, and then a release was executed of all claims against him. In the suit against Mr. Gage there was no allegation of collusion between him and Mr. Francklyn. The court says the burden was upon the company of showing that Mr. Gage's representations were false, and that they were relied upon in transferring the stock to him, and the court comes to the conclusion that Mr. Gage had an equitable claim to reimbursement for services rendered and stock sacrificed, as claimed by him, and that the payment of the claim was a valid exercise of the discretion vested in the trustee; that Mr. Gage's representations were not false, and the fact was well known to the trustee at the time of the transfer. The court holds that the company is not entitled to a return of the 5,000 shares and that Mr. Gage should have a reconveyance of 1,250 shares of stock which were deposited by him as collateral to a contract made by the company.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 700.)

New York. June 8.

Heavy Chemicals.—The warmer weather brings with it the closing of glass works, which causes a dull season for soda ash. For 1901 delivery a good inquiry is reported for caustic soda, but prices are higher than consumers care to pay. Sal and bicarb. soda are in better request, and so is spot bleaching powder. The Castner-Kellner Alkali Company reports for the year ended March 31st, a net profit of £45,398, to which is added £5,000, making £50,398 brought forward. Deducting £18,694 disbursed in an interim dividend and in debenture and loan interest leaves an available balance of £32,046. Deducting from this £28,278 for a further dividend, writing off expenses of the debenture issue and for depreciation reserve account, a balance of £3,768 is carried forward.

Resales of prime English bleaching powder are reported at $1.50 per 100 lbs.

We quote per 100 lbs. as below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	80@85	95@$1.00	85@90
" 48%.	85@90	$1.00@$1.05	1.02½@1.05
Caustic Soda, high test....	$1.90@$2 00	2.25@2.30	$2.50@2.55
powd., 60%.	.....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3 50@4.00	3.75@4.00
Sal Soda.....	70@80.	.....	67½@70
"conc.	1.45@1.75	.....	1.75
Bicarb. Soda..	1.25@1.37½	.....	2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	.....	1.87½@2.00
other br'nds.	.....	.....	1.45@1.60
Chl. Pot. cryst	.....	9.25@9.50	10.25@10.50
" powd.	.....	9.50@.9.75	10.59@10.75

Acids.—May contract deliveries of sulphuric and muriatic acids showed an increase over the previous month. Blue vitriol is in good request for export. Prices are unchanged.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8 in lbs.	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol.	5.00@5.12½	Nitric, 38°	4.12½
Aqua Fortis, 36°.	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°.	3.87½	Nitric, 42°	4.75d.
Aqua Fortis, 40°.	4.12½	Oxalic	.5.75@6.00
Aqua Fortis, 42°.	4.50	Sulphuric, 66°.	1.20
Muriatic, 18°.	1.20	Sulphuric, 60°	1.05
Muriatic, 20°.	1.35	" bulk 50° ton	14.00
Muriatic, 22°.	1.50		

Brimstone.—Dull. Best unmixed seconds on spot and for shipment are quoted $20.75@$21 per ton, while thirds are $18.75@$19. For shipment up to and including August, large contracts are reported at $20.50 per ton.

Pyrites.—Imports from Spain at New York this week were 3,730 tons copper pyrites. The Davis Sulphur Ore Company of Massachusetts reports two steamers in port of about 4,000 tons copper pyrites each. Business continues good and it is said desirable pyrites are scarce as producers have little or no stocks in hand for prompt shipment. Prices are unchanged. Abroad non-cupreous pyrites are quoted 4½d. per unit (about $4.22 per ton), f. o. b. shipping port, which would make the cost at Atlantic seaports about $6.86 per ton after adding 11s. for ocean freight.

We quote: Mineral City, Va., lump ore, $4.75 per long ton (basis 42%), and fines, $4.20. Charlemont, Mass., lump, $5.50, and fines, $5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42% @44%.

Fertilizing Chemicals.—Leading animal ammoniates are very quiet. The Virginia-Carolina Chemical Company paid a dividend of 1% on the common stock on June 1st. Quotations are: Sulphate of ammonia, gas liquor, spot, $2.90@$2.92½ per 100 lbs., and shipment, $2.85@$2.87½; high grade Western blood, $1.85 per unit, f. o. b. Chicago; tankage, 9 and 20, $1.85@$1.90 and 10, f. o. b. Chicago; domestic steam ground bone, $20@$22 per ton; Calcutta bone meal, No. 2, $25 per ton, and No. 3, $23; bone black, spent, $15@$16 per ton; fish scrap, dried, $21@$21.50 per ton, f. o. b. factory.

The prices for potash salts at New York, Boston and Philadelphia, per 100 lbs., are as follows: Muriate of potash, 80@85%, basis 80%, $1.83; muriate of potash, minimum 95%, basis 80%, $1.86; sulphate of potash, minimum 90%, basis 90%, $2.05½; sulphate of potash, minimum 96%, basis 90%, $2.08½; manure salt, minimum 20% potash, 64@66c.; double manure salt, 48@53%, basis 40%, $1.06; kainit, 12.4% potash, $9.05@$9.30 per long ton; and sylvinit, 38½@39½c. per unit. For Norfolk prices add 2c. per 100 lbs. to the concentrated salts, except double manure salt, to which add 1c., and for kainit add 30c. per ton, and sylvinit 1c. per unit. For Charleston, Savannah, Wilmington, N. C., and New Orleans, add 1½c. per 100 lbs. to the concentrated salts, except 20% manure salt, to which add 1s.; and to kainit add 20c. per ton, and sylvinit 1c. per unit. These prices are for not less than 500 tons of bulk salts or 50 tons of concentrated salts, and are based upon river shipments from the mines to seaport. For shipments by rail add 5c. per 100 lbs.

Phosphates.—Little demand for immediate delivery. In Florida preparations are being made for large shipments this month. In May rock shipments through Savannah amounted to 4,862 tons, making 52,721 tons for the five months this year, and showing an increase of 19,151 tons as compared with 1899. From Punta Gorda there were shipped in May 4,901 tons Peace River rock to domestic ports, and 6,089 tons to foreign; a total of 10,990 tons, against 18,060 tons in May, 1899. For the five months ending May 31st, 1900, Punta Gorda shipped 17,435 tons, showing a decrease of 21,297 tons as compared with the corresponding period in 1899. In Tennessee the Franklin deposits are to be developed commercially. The Mt. Pleasant mines anticipate large deliveries this month, and are consequently digging more rock. Prices are easier.

We imported 2,000 bags phosphate this week from Antwerp. Concerning the Christmas Island phosphate deposits it is learned that work is limited by the crude methods employed. The loose pebbles or stones in which the phosphate of lime occurs are shoveled by hand into trucks ready for shipment. It is claimed that the average stone carries 86% phosphate of lime and 4% iron and alumina and sometimes runs as high as 92% phosphate of lime and 6% iron and alumina. The freight rate to London is about 35s. ($8.40 per ton). It is claimed that the entire production this year, amounting to over 25,000 tons, has already been sold.

We quote as follows:

Phosphates.	Per Ton F. o. b.	C i. f. Un'd Kingdom or No Sea Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8.00	8@8¼d	$12.48@12.87
*Fla. land pebble (68@73%)	4.35	7d	9.80
*Fla Peace River. (58@63%)	3.00@3.50	6½@6⅝d	7.80@7.95
†Tenn. rock. 78%, export.	4.00	7⅛@7¼d	11.15@11.31
†Tenn.....78% domestic.	3.50	.....	.....
†Tenn.....75% "	2.75@3.00	.....	.....
†Tenn.....72% "	2.50@2.65	.....	.....
‡So. Car. rock, crude....	3.00	.....	.....
‡So. Car. rock, ground....	5.00	.....	.....
Algerian, rock...(63@70%)	.....	7d	9.30
Algerian, rock...(58@63%)	.....	6¾d	8.18
Christmas Isle...(80@85%)	.....	8½d	14.03

*Fernandina. †Mt. Pleasant. ‡Fetteressa.

Nitrate of Soda.—The bark "Swanhilda" arrived at New York with 24,725 bags, part of which has been sold at $1.72½@$1.75 per 100 lbs. Demand from consumers is limited, owing to their apparently large stocks. At the close sales are reported on spot at $1.72½, and for future delivery at $1.70. With steady freights prices will be maintained throughout the year.

The monthly average prices of spot nitrate of soda per 100 lbs. in New York as quoted by importers are as below, comparison being made with last year:

	1899.	1900.
January	$1.60	$1.80
February	1.64	1.96
March	1.62	2.18
April	1.66	2.04
May	1.60	1.78
Average, 5 months	$1.62	$1.95

So far this year prices show an increase of 33c. per 100 lbs.

Messrs. Mortimer & Wisner's monthly statement of nitrate of soda, dated New York, June 1st, gives the following statistics:

	1900.	1899.	1898.
	Bags.	Bags.	Bags.
Imp. into Atlantic ports from West Coast S. A., from Jan. 1, 1900, to date.	420,513	308,841	323,443
Imp. from Jan. 1 from Europe	2,063	.....	23,672
	422,576	308 841	347,115
Stock in store and afloat June 1, 1900, in New York	28,467	54,231	21,289
Boston..	.....	.....	.....
Philadelphia	.....	.....	.....
Baltimore	1,500	500	.....
Norfolk, Va	.....	.....	.....
Charleston	.....	.....	.....
To arrive, due Sept. 15, 1900	292,000	258,000	300,000
Vis. supply to Sept. 15, 1900	321,967	312,731	321,289
Stock on hand Jan. 1, 1900..	9,586	58,406	15,383
Deliveries in April.....	117,151	86,179	86,544
Deliveries since Jan. 1 to date	402,195	312,516	341,209
Total yearly deliveries....	.....	976,592	967,525
Prices current, June 1, 1900	$1.75	$1.57½	$2½

Saltpeter.—Imports into the United States in May are reported at 5,316 bags (4,045 bags in 1899), making a total for the five months of 29,761 bags (26,749 bags in 1899). Expected arrivals amount to 8,360 bags. Stocks in Boston and New York on May 31st aggregated 7,600 bags, making the visible supply 15,960 bags, against 16,389 bags on May 31st, 1899. Deliveries in May were 4,416 bags, against 3,845 bags last year. Crude saltpeter is quoted $3.62½ per 100 lbs. on spot, and $3.40 for shipment.

Liverpool. May 30.

(Special Report of Joseph P. Brunner & Co.)

With the exception of chlorine products, which are dull and neglected, there is a steady market for chemicals, but demand is only moderate as regards fresh business.

The Castner-Kellner Alkali Company has declared a dividend of 8% for the 12 months ending March 31st last, which is at the same rate as for the previous 12 months.

Soda ash is firm at the usual variations according to export market. We quote spot range for tierces about as follows: Leblanc ash, 48%, £4 15s.@£5; 58%, £5 5s.@£5 10s. per ton net cash; ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Bags are 5s. per ton under price for tierces. Soda crystals are in request, and £3 2s. 6d. per ton, less 5%, is generally quoted for barrels, or 7s. less for bags, although special terms are quoted for a few favored markets. Caustic soda shows no signs of weakness, and as market has been practically cleared of resale parcels, full prices have to be paid by buyers. We quote spot range as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton net cash.

Bleaching powder is very slow, and quotations for hardwood may be quoted at about £6 10s.@£6 15s. per ton net cash.

Chlorate of potash attracts little attention and is nominally quoted at about 4¼d.@4½d. per lb., net cash.

Bicarbonate soda is unchanged and selling at £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with special quotations for certain larger packages.

Sulphate of ammonia is a shade off at £11 12s. 6d.@£11 15s. per ton, less 2½%, for good gray, 24@25% on double bags f. o. b. here.

Nitrate of soda is easier at about £8 7s. 6d.@£8 12s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quality and quantity.

MINING STOCKS.

Complete quotations will be found on pages 697 and 698 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	Montreal.
Colo. Springs.	Spokane.	London.
Denver.	Salt Lake.	Mexico.
New York.	San Francisco.	Paris.
	Toronto.	

New York. June 8.

Early in the week prices recovered, but at the close they are lower. Amalgamated fluctuated between $90¼@$88½ on small sales, and Anaconda from $43 to $40. Union of North Carolina was weak, selling at $5@4¾. British Columbia Copper was higher at $10¼@$10⅞. American Smelting and Refining common sold up to $38½, and the preferred to $90¼, owing to report that the negotiations for the acquisition of the Guggenheim plants are progressing favorably. These rumors are very doubtful.

Standard Consolidated of California sold up to $4.25—the highest price on record—but later reacted to $4.10. Brunswick, also of California, held steady at 28c. Breece of Colorado reappeared in the selling list, and brought $1.75. Isabella is firm at $1.25, Elkton at $1.45, Portland, $3; Work, 33c.; Mollie Gibson, 23c.; Argentine Juniata, 20c.; Little Chief, 17@18½c.; Pharmacist, 13@12½c., and Creede and Cripple Creek, 13½c.

Few Comstocks were sold. Ophir brought 77c., Sierra Nevada, 35c., and Yellow Jacket, 18c.

An auction sale of 233 shares of the New Jersey Zinc Company was reported at $125.

Boston. June 5.

(From Our Special Correspondent.)

The opening of summer finds a very dull and narrow market, with signs that such conditions are likely to assist for some time. Prices are depressed and dealings are light. The public seems to take little interest and the transactions are chiefly professional.

In the dividend paying coppers, Calumet & Hecla sold at $705. Boston & Montana, $298; Quincy, $135; Osceola, $60½; Parrot, $39. In the speculative stocks Utah was quoted at $26; Arcadian, $20; Isle Royale, $24; Franklin, $13; Michigan, $4½.

The gold stocks showed few transactions. Centennial-Eureka brought $23½; Cochiti, $10½, and Santa Ysabel, $1@$1½.

In the general list Dominion Coal sold at $41; New England Gas and Coke, $17½; United States Oil, $15½. The rest of the list was hardly mentioned.

The Old Colony Trust Company has been appointed registrar of the certificates of deposit of the Boston & Montana trust receipts, which must be registered on or before June 7th to be "good delivery" on the stock exchange. There have been deposited under the protective agreement 139,775 shares out of the total capital of 150,000 shares.

Colorado Springs. June 2.

(From Our Special Correspondent.)

The production of the mines of the Cripple Creek district for May is estimated at $2,025,000, a gain of $592,000 over April. The roads of the camp are again passable and the majority of those mines which were forced to curtail production, or stop it entirely, on account of the drowning out of their properties by surface water were able to resume and continued to operate the entire month of May. The smelter rates are again satisfactory which permits the shipping of the full tonnage from the mines.

The week among the mining companies has furnished interesting studies in values. Pontland, the sensation of last week, was forced into the background, closing to-day at $3,25, with $3.18 bid. The bulge of last week, occasioned by rumors of the contemplated sale of the mine for $5 a share, has lost its force. Gold King dropped this week, closing to-day at $1.08½ bid, $1.10 asked. The report that the mine was about to be sold to an English syndicate was punctured this week, and the stock fell flat. There is but little of this stock out.

The consolidation of the Elkton Consolidated, Raven and Tornado mining companies will be effected on June 4th in this city. At that time 75 acres of choice mining territory pass over to the new Elkton Consolidated Company, which is launched with a capital stock of 3,000,000 shares par value $1. The new company will have assets of $250,000 cash balance and 500,000 shares of treasury stock. A 3c. quarterly dividend, amounting to $75,000, will be declared immediately after the consolidation.

Independence Town and Mining shares suffered a severe decline this week, losing from 72⅜ on Monday to 66¼ to-day. The decline was occasioned by reports that the Wilson Creek Consolidated Company is about to renew its legal battle for the ownership of the Hull City placer, under a new form.

The minority stockholders of the Margery Gold Mining Company, representing 300,000 shares of stock, began an injunction suit to-day in the District Court of this city against the officers and directors of the company in Denver to annul the sale of two of the company's claims to parties in this city for $30,000, a figure alleged to represent but half the intrinsic value. The stock is but a low priced prospect, but the parties involved are quite prominent in Colorado mining circles.

Gold coin remains strong at $5.50, this being the highest priced stock on the local market. Isabella fluctuated between $1.28½ and $1.26. Mateo advanced from 27¾ to 34 on reports of a rich strike in the 1,000-ft. workings.

The mines list monopolized the attention of the investors and speculators and consequently the prospects and miscellaneous lists received scant attention.

There were traded in this week on the two exchanges of the city 3,656,514 shares, representing a cash value of $625,000. The totals on the old exchange for the month were 14,101,441 shares, of a cash value of $2,337,195. There were dividends amounting to $280,000 distributed by Cripple Creek mines during May.

Salt Lake City. June 2.

(From Our Special Correspondent.)

Trading was fairly active following the holiday in the middle of the week, though to-day's market was more quiet, with prices well maintained. The Tintics, which embrace the great majority of the favorite trades, are generally higher and stronger, due to new ore uncoverings. This upward movement was aided by Mammoth's declaring a $20,000 dividend, payable June 7th, which came as a surprise following many false alarms; and Swansea announcing a double dividend, or $10,000, payable June 9th.

Bullion-Beck holds the advance in spite of inside influences to depress it. Daly-West is stronger, above $17, but did less business than for several weeks past. It is said the sale of the Dexter property to a Boston and London syndicate for $500,000 is practically consummated; this is on a basis of $2.50 per share. Eagle & Blue Bell did considerable business around 80. Geyser-Marion has almost reached the vanishing point, with the 3-cent assessment taken into account.

Grand Central did a quite lively business between $5.60 and $5.99. There are still rumors of a change in the control and a union with Mammoth under the Farrel-Grant regime. Lower Mammoth displayed unexpected strength, selling up to 70, but softening a little on the close. The Mercur-De La Mar consolidation is consummated, which gives greater stability to these shares. Particulars of this important deal will be found in another column. Silver King will pay the usual $75,000 dividend June 9th.

Total sales as reported on the exchange for the past week were 77,296 shares, which sold for $55,761.

San Francisco. June 2.

(From Our Special Correspondent.)

The market has been very dull this week, almost too quiet to furnish a record. The holiday on Wednesday made it still more quiet.

Some quotations noted are: Consolidated California & Virginia, $1.40@$1.45; Caledonia, $1.20@$1.25; Confidence, 70c.; Ophir, 53@54c.; Sierra Nevada, 30@32c.; Hale & Norcross, 23@25c.; Potosi, 21@22c.; Yellow Jacket, 16c. Standard Consolidated was quoted at $4.50 bid, with no sales.

The Truckee River General Electric Company, which is to furnish power for the Comstock mines, is reported to be making good progress with work.

On the Producers' Oil Exchange business has been a little more active. We note sales of Home Oil at $4.55@$4.60; West Lake, 70c.; American Oil, 35c. Prospects are less in demand.

London. May 26.

(From Our Special Correspondent.)

There has again been an entire absence of business in the mining market. The time has been taken up on the Stock Exchange chiefly in cheering for Baden-Powell, and on the Queen's birthday there was also a great demonstration. But of actual business there was none. Last week it seemed probable that professional operators were buying quietly for the expected rise, and to a certain extent the South African shares hardened and rallied. This movement, however, has not been so noticeable this week, and South Africans generally have been neglected and the quotations weakened. A good deal of discussion has been taking place as to the intentions of the DeBeers Company with regard to the next dividend. It is said that there will be no dividend owing to the damage done to the property and to the expenses incurred in the defense of Kimberly. I am inclined to think that a dividend will be paid, though, perhaps not at so high a rate as last year, and that the extra expenses will be provided for out of the reserve fund. Probably the original reason for the formation of a reserve fund was to provide the necessary funds for military operations either offensive or defensive.

A few months ago you referred in an editorial note to the International Zinc Company properties near Joplin, Missouri, and mentioned that the shares of this company were being offered on sale in England. These operations are still being pushed here. The latest circular says that the company is earning 22% per annum and is paying dividends at the rate of 1% monthly. The $1 shares are being offered at 4s.; but after the current week the price is to be raised to 5s., and after another 100,000 shares have been sold the price will be 6s. per share. The promise is "life-long dividends" and similar twaddle. On making inquiries I find that shares have been bought by people who know nothing of mining and never heard of the "Engineering and Mining Journal," and, no doubt, the business will be continued just as long as there are people ready to put up their money.

Speaking of patent processes for the treatment of Kalgoorlie ores, I may mention that Mr. Hinman, who has been running the Gold Extraction and Bromine Recovery Company in conjunction with Mr. Cassel, has brought out a new process in conjunction with a Mr. Riecken for the treatment of this class of ore. The process does not seem to be any novelty, for it combines cyaniding, electro deposition and amalgamation all in one bath. The process, however, is to be tried at the South Kalgoorlie Mine, but as a metallurgical proposition it can hardly be taken seriously.

Paris. May 27.

(From Our Special Correspondent.)

Speculation is somewhat limited and the market for mining stcoks is less animated than one would desire. Upon the whole the week has been without special events.

Nevertheless the South African gold stocks have been more active than for some time. In spite of the gloomy predictions of our anti-British party, one perceives that the war is approaching an end, and the overwhelming British force is beginning to tell. Mining on the Witwatersrand may be resumed sooner than was expected.

Reports from the lead and zinc companies continue to be presented. That of the Spanish lead company, Escombrera-Bleyberg, shows less gain than had been expected. Nevertheless the company has a surplus of 1,847,735 fr. to divide among the stockholders. The zinc company, Malfidano, reports for 1899 net earnings of 2,860,400 fr.; after the usual assignments to reserve and depreciation, a balance remains of 2,108,400 fr., from which dividends of 50 fr. per share will be paid.

I hear reports of a large company to be organized to exploit copper deposits recently discovered in Southwest Africa. The project has not yet formed itself with sufficient definiteness to enable one to learn any details.

The metallurgical shares are finding fewer supporters and some weakness is apparent in their course. New orders are slower in arriving, and costs for fuel, ore and labor are higher, so that one cannot expect so great profits in the current year as in 1899. At least that is the general impression, and it has its effect on the course of the stocks.

The movement of gold and silver in France for the three months ending March 31st is reported by the Ministry of Commerce as below:

	Imports. Francs.	Exports. Francs.	Excess. Francs.
Gold:			
1900	80,184,893	20,631,535	Imp. 59,533,358
1899	89,618,143	39,851,810	Imp. 49,766,333
Silver:			
1900	33,142,932	51,046,061	Exp. 17,903,129
1899	31,404,907	37,482,318	Exp. 6,077,411

The imports of copper and nickel coins, rated at their face or coinage value, were 15,300 fr., against 18,900 fr. last year. The exports of these coins were 67,500 fr., which compares with 134,100 fr. in 1899.

The scarcity and high prices of coal are matters of much discussion and some anxiety. In Paris one pays now 60 fr. the ton for ordinary house coal. In the Mediterranean ports steam coal is worth 35 to 40 fr. the ton in large lots. Coke for our iron and steel works costs double the price of two years ago. Our metallurgical works and our factories are seriously embarrassed because they cannot get fuel enough for their needs.

How long will this last? Severe alarmists say always; but they evidently forget the past. In a year—or less—the pressure will be over.

Azote.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
		$	$	$
†Am Steel&Wire,com.	July 2	1.75	875,000	1,750,000
†Am. Steel & Wire, pf	July 2	1.75	700,000	4,900,000
*Bunker Hill & Sull.	June 4	.07	21,000	927,000
Calumet & Hecla	June 28	10.00	1,000,000	69,850,000
*Cordell Zinc, Mo.	June 15	.05	3,000	15,000
Denver & Cripple Cr'k	June 1	.01½	10,625	10,625
*Empire State, Idaho.	June 15	.30	29,554	495,363
Gold King, Colo	June 20	.03	30,000	180,000
Iowa, Colo	June 15		6,000	136,834
Madison, Colo	June 10	.03½	75,000	75,000
Mammoth, Utah	June 7	.05	20,000	1,710,000
§Maryland Coal, pf	June 30	2.00	37,700	584,319
†National Lead, pf	June 15	1.75	260,820	10,057,640
†National Salt, com.	Aug. 1	1.50		
†National Steel, pf.	June 30	1.75		
†Nat'l Tube, com.	Aug. 15	1.50		
†Nat'l Tube, pf.	July 2	1.75		
*N. Y. & Hond. Ros.	June 16	.10	15,000	1,252,000
Omega, Colo	June 22	.01½	18,188	18,188
§Osceola, Mich	June 2	3.00	279,000	3,359 500
†Republic Iron & S., pf	July 2	1.75	371,997	1,587,989
*Silver King, Utah	June 9	.50	75,000	2,825,000
Standard Oil	June 15	10.00		
†Stratton's Indep'd'e.	June 14	.48	480,000	1,920,000
*Swansea, Utah	June 9	.10	10,000	246,500
§Tamarack, Mich	June 29	7.00	420,000	6,690,000

* Monthly. † Quarterly. § Semi-annual.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Aetna	Utah	June 11.	Salt Lake City, Utah
American Boy	Wash.	June 25.	Spokane, Wash.
Best & Belcher	Nev.	July 12.	San Francisco, Cal.
*Buffalo Hump	Idaho.	June 13.	45 Cedar St., N. Y.
Bunker H. & Sull	Idaho.	June 17.	San Francisco, Cal.
Centennial	Mich.	July 13.	60 State st., Boston.
Dipper	Utah	June 20.	Salt Lake City, Utah
Golden Fleece	Colo.	July 20.	Council Bluffs, Iowa.
Home	Colo.	June 11.	Leadville, Colo.
Homestake	S. Dak.	July 18.	San Francisco, Cal
Iron Prince	Utah	June 16.	Salt Lake City, Utah.
National Con.	Cal.	June 4.	San Francisco, Cal.
Quicksilver	Cal.	June 20.	20 Nassau St., N. Y.
Union Con	Nev.	July 12.	San Francisco, Cal.

*Special meeting.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Allison Ranch-Ford	Cal.		June 16		.01
Alpha Con	Nev.	23	May 24	June 14	.03
Arrastraville	Cal.	5	June 11	July 11	.10
Belcher	Nev.	64	May 29	June 19	.15
Ben Butler	Utah	4	June 14	July 2	.00¼
Bullion	Nev.	56	June 20	July 10	.03
Garibaldi	Cal.	2	July 9	July 31	.04
Geyser-Marion	Utah		June 27	July 30	.03
Goleta Con	Cal.	1	June 15	July 9	.06
Jenny Lind	Cal.		June 21		.01
Justice	Nev.	68	May 29	June 20	.05
Lion Con	Utah	3	June 2	June 20	.00½
Marmaduke	S.D'k		June 1	July 1	.00½
May Day	Cal.	4	June 6	July 25	.10
Meicher	Utah	2	June 29	July 16	.01
Ophir	Nev.	78	June 6	June 26	.20
Picnic	Utah	1	June 9	June 30	.01
Ruby Hill	Utah	1	July 10	Aug. 10	.00½
Sailor Con	Cal.		June 22		.01
Seg. Belcher & Mides.	Nev.	25	June 20	July 10	.03
Sheba	Cal.		June 28		.10
Silver State	Utah		July 2	July 20	.00½
Star	Utah		June 26	July 16	.01
Sunbeam	Utah		May 25		.10
Tetro	Utah	13	June 30	July 21	.01
Texas	Cal.		July 11		.10
Utah Con	Nev.	33	June 7	June 28	.05
Victor	Utah		June 6	June 26	.03
Victory	S.D'k	9	June 5	June 23	.00½

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	June 1. H.	June 1. L.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	June 7. H.	June 7. L.	Sales
Alamo	Colo.	1	.16	....	.16	....	.14½	....	....	....	.13½	....	....	....	3,000
Alice, g. s.	Mont.	25	....	....	....	....	.45	....	....	....	.40	....	....	....	....
Amalgamated C	"	100	89.75	89.50	90 50	90.00	90.00	89.00	....	....	88 75	88 00	88.50	88 00	900
*Anaconda, c.	"	25	43.00	42.50	43.00	42 88	43 00	41.00	41.50	41 13	41 25	40 88	40.75	....	4,935
Anaconda Gold	Colo.	5	....	....	....	....	.32	....	....	....	.33	....	....	....	....
Argentum-Jun.	"	2	....	....	....	....	.19	....	.20	....	.21	....	....	....	800
*Ariz. Lead	Ariz.	25	16.25	15.75	16.25	15.75	16.25	15.75	16 25	15 75	16.25	15.75	16.25	15.75	....
Belcher	Nev.	5	....	....	....	....	....	....	....	....	.25	....	....	....	450
B. & Belcher	"	5	....	....	....	....	....	....	....	....	.31	....	....	....	500
Breece	Colo.	25	1.75	....	....	....	1.75	....	....	....	....	....	....	....	100
Brit.Col.Copper	B. C.	1	10.00	9.50	10.50	10 00	10 50	10 00	10 50	10.00	10.88	10.50	11.00	10.25	600
Brunswick	Cal.	1	....	....	....	....	.28	....	.28	....	.28	....	....	....	800
Chollar	Nev.	3	.25	....	....	....	.20	....	....	....	.20	....	....	....	500
Chrysolite	Colo.	50	....	....	....	....	.04	....	....	....	....	....	....	....	....
Comstock T.	Nev.	100	.08	....	.08	....	.08	....	.08	....	.08	....	....	....	7,500
" bonds	"	100	....	....	....	....	....	....	....	....	.02½	....	....	....	....
Con. Cal. & Va.	"	2½	....	....	1.55	....	1.45	....	....	....	1.45	....	....	....	800
Creede & C. C.	Colo.	1	.14½	....	....	....	....	....	.13½	....	....	....	....	....	1,020
Cripple Cr. Con.	"	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Daly	"	1	....	....	....	....	1.10	....	....	....	1.00	....	....	....	....
Deadw'd Terra	S.Dak.	25	....	....	....	....	.50	....	....	....	.50	....	....	....	400
Elkton	Colo.	1	....	....	....	....	1.45	....	....	....	....	....	....	....	....
Golden Age	Colo.	1	.04	....	....	....	.04	....	.04½	.04	....	....	....	....	3,500
Golden Fleece	"	1	....	....	....	....	.28	....	....	....	.25	....	....	....	....
Gould & Curry	Nev.	3	....	....	....	....	.12	....	....	....	.12	....	....	....	....
Homestake	S. Dak	100	....	....	....	....	50.00	....	....	....	50 00	....	....	....	....
Horn Silver	Utah	20	....	....	....	....	1.20	....	....	....	1 25	....	....	....	....
Iron Silver	Colo.	20	....	....	....	....	.60	....	....	....	.60	....	....	....	300
Isabella	"	1	....	....	1.25	....	1.20	....	1.25	....	....	....	....	....	....
Lacrosse	Colo.	10	....	....	....	....	.14	....	....	....	.14	....	....	....	....
Leadville	"	10	....	....	....	....	.06	....	....	....	.16	....	....	....	....
Little Chief	"	1	....	....	....	....	.17	....	.18½	....	.17	....	....	....	400
Mexican	Nev.	3	.28	....	....	....	.30	....	....	....	.22	....	....	....	500
Mollie Gibson	Colo.	5	.28	....	.22	....	.21	....	.23	....	....	....	....	....	1,100
Moulton	Mont.	25	....	....	....	....	.36	....	....	....	.20	....	....	....	....
Ontario	Utah	100	....	....	....	....	7.00	....	....	....	7.00	....	....	....	....
Ophir	Nev.	3	....	....	....	....	.53	....	.77	....	.72	....	....	....	400
Pharmacist	Colo	1	....	....	....	....	....	....	.13	....	.12½	....	....	....	3,000
Phoenix	Ariz.	1	....	....	....	....	.07	....	....	....	.07	....	....	....	....
Plymouth	Cal.	10	....	....	....	....	.10	....	....	....	.11	....	....	....	500
Portland	Colo.	1	....	....	....	....	3 20	....	3.00	....	2.90	....	....	....	100
Potosi	Nev.	3	....	....	....	....	.20	....	....	....	.20	....	....	....	....
Quicksilver	Cal.	100	....	....	....	....	1.50	....	....	....	1.50	....	....	....	....
do. pref.	"	100	8.00	....	....	....	7 00	....	....	....	6.50	....	....	....	100
Savage	Nev.	2½	....	....	....	....	.10	....	....	....	.10	....	....	....	....
Sierra Nevada	"	3	....	....	....	....	.33	....	.35	....	.30	....	....	....	200
Small Hopes	Colo	20	.75	....	.65	.60	.50	....	....	....	.55	....	....	....	1,800
Specimen	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Con.	Cal.	10	4.15	4.10	....	....	4.25	4.15	4 10	....	4.0	....	....	....	400
Tenn Copper	Tenn	25	14.00	13 00	14.00	13.00	14 00	13.00	14.00	13.00	14.00	12.00	14 00	12.00	1,000
Tornado	Colo.	1	.52	....	....	....	....	....	....	....	....	....	....	....	....
Union Con.	Nev.	2½	....	....	....	....	.30	....	....	....	.16	....	....	....	....
Va. M.	Colo	1	....	....	....	....	....	....	.03½	....	....	....	....	....	2,000
Work	"	1	.34	....	....	....	....	....	.33	....	....	....	....	....	800
Yellow Jacket	Nev.	3	....	....	....	....	.18	....	....	....	.12	....	....	....	....

COAL AND INDUSTRIAL STOCKS

Am. Sm. & Ref.	.....	$100	38⅞	38⅛	38⅝	38⅛	38¼	38	38⅛	37⅝	37⅜	37⅛	37⅝	....	5,470
" " " pf	.....	100	89⅝	....	89⅝	....	90	89¼	89⅝	89⅛	90¾	90	90⅜	....	2,549
Am.S & W Con	.....	100	37⅛	36¼	36⅜	35⅞	35¾	34⅛	35¼	35⅛	35	34⅜	34⅝	....	39,695
" " pf'r n	.....	100	77⅜	77⅛	77⅝	77	76⅛	74⅜	75¼	74⅛	75	....	74⅛	....	5,403
Am. Tin Plate	.....	100	23⅜	....	23⅛	....	22⅜	....	....	....	23	21⅜	21⅝	....	1,90
" " pf	.....	100	73⅛	....	....	....	73⅝	72⅜	....	....	73½	73	73	....	978
Col. Fuel & I.	Colo.	100	37½	37⅛	37⅛	36⅝	....	....	36	35⅜	35⅛	35	34½	....	3,025
Col. & H.C.& I	" "	100	....	....	15¾	....	.15	....	....	....	....	....	....	....	300
Federal Steel	.....	100	37¼	36⅜	36⅝	35⅞	35½	33⅝	34¼	33⅜	34	33⅛	33⅝	....	33,968
" " pf	.....	100	68¾	....	68⅞	....	67⅝	66⅝	67	66⅜	....	....	66⅝	....	2,380
Fleming'n C.&C	W.Va.	100	26¾	23	26⅝	23	26⅞	23	26¾	23	26¾	23	27	23	....
Int'l Pump	"	100	9	18	19½	18	19¼	18⅝	18½	17¾	18⅝	17⅝	19⅛	17	....
National Lead	N. Y.	100	21	....	20	19⅜	19¾	18⅝	9	....	18⅝	18⅝	18⅝	....	1,960
" " pf	.....	100	98½	....	....	....	97½	....	96½	....	....	....	....	....	359
National Salt	.....	100	....	....	....	....	....	....	....	....	....	....	....	....	....
" " pf	.....	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Nat'l Tube	.....	100	44⅜	44¼	44⅜	44¼	45	44⅜	44	44¼	44	43⅞	44	....	3,128
Press. St. Car	Pa.	100	46¾	45⅝	47⅝	47⅛	47	....	47¼	47⅛	46	....	46¼	....	1,900
" " " pf.	"	100	77⅛	76½	77⅝	77¼	77½	77¼	77¼	77	77¼	....	....	....	1,395
Republic I. & S.	.....	100	14⅜	14	14¾	14⅜	13⅝	13⅜	13⅝	....	13¼	13	12.88	....	5,44
" " pf	.....	100	57¼	56¾	57⅝	....	57	....	56¾	56	57	....	57	....	2,110
Sloss-Shef.	.....	100	22⅜	20	22⅜	20	22¼	20	21¾	21	23	21	23	21	....
" " pf.	Ala..	100	64	61	64	61	64	61	64	61	65	62	64	62	....
Stan.Oil of N.J.	"	100	550	....	550	545	555	552	551	548	550	546	550	547	30
Tenn.C.,I.&R.R.	"	100	75½	74¼	76¼	74¼	74	73	73¾	72¼	72	70	71¼	....	17,232
" " pf	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
U.S.Cast I.P.&F	.....	100	6¼	6	6¼	6	6¼	6	6¼	6	6¼	6	6¼	5¾	600
" " " pf	.....	100	42	41	42	41	42	41¾	42	41	42	41	42	41¾	....
Va. Coal & C	W.Va	100	7	5	7	6	7	6	7	6	6	4	....	....	....

*Ex-dividend. Total sales, 166,258.

PHILADELPHIA, PA.*

Name of Company.	L'cation.	Par Val.	May 31. H.	May 31. L.	June 1. H.	June 1. L.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	Sales
Am. Alkali	.....	.....	2 88	2.75	2.88	....	2.85	2.75	2.88	....	2.88	2.75	2.75	....	3,525
" " pf.	.....	.....	.50	....	....	....	....	....	....	....	63	....	....	....	209
Bethlehem Iron	Pa.	.....	....	....	57.75	....	....	....	57.75	....	57.75	....	....	....	110
Bethlehem S'l.	"	$50	14 00	....	16.00	15 50	16 38	16.00	16 25	16.00	15 63	....	15.00	....	1,570
Cambria Iron	"	50	....	....	....	....	44.00	....	....	....	48.50	....	44.00	....	92
Cambria St'l.	"	50	18.25	17.75	18 63	18.00	18.63	18 25	18 13	17.88	17.75	17.50	17 50	....	6,918
Susq. I. & S.	"	10	3 00	2.88	3 00	....	....	....	2.88	....	2.75	....	2.88	....	1,215
United Gas I.	"	50	116¾	115¾	117¾	117	117¾	117	117	116¼	117	116¼	116¼	116	1,962

Total shares sold, 17,292. * Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par value.	May 31	June 1.	June 2.	June 4.	June 5.	June 6
Belcher	Nev.	$3.00	.20	.20	.21	.20	.22	.22
Best & Belcher	"	3 00	.26	.31	.31	.28	.28	.26
Caledonia	"	5.00	1 15	1.15	1.10	1.05	1.15	1.10
Challenge Con.	"	3.00	.12	.14	.2	.12	.13	.15
Chollar	"	3.00	.22	.26	.24	.24	.24	.22
Confidence	"	3.00	.70	.65	.65	.65	.60	.60
Con. California & Virginia	"	2 50	1 40	1.60	1.55	1 50	1.55	1.50
Crown Point	"	3.00	09	.10	.10	.09	.08	.09
Gould & Curry	"	3.00	.12	.15	.15	.14	.14	.14
Hale & Norcross	"	3.00	.23	.26	.9	.24	.26	.27
Justice	"	2.00	.08	.08	.08	.09	.09	.09
Mexican	"	3 00	.23	.29	.27	.25	.25	.23
Occidental Con.	"	3.00	.11	.12	.12	.12	.12	.13
Ophir	"	3.00	.58	.63	.58	.73	.76	.78
Potosi	"	3.00	.21	.25	.24	.21	.22	.17
Savage	"	2.50	.12	.14	.14	.13	.14	.14
Sierra Nevada	"	3.00	.30	.36	.35	.31	.32	.32
Standard Con.	Cal.	10.00	4.80	4 50	4 60	4.70	4 50	4.50
Union Con.	Nev.	2.50	.20	.24	.23	.20	.22	.22
Utah Con.	"	1.00	.07	.08	.08	.12	.13	.12
Yellow Jacket	"	3.00	.15	.16	.16	.14	.14	.04

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	May 18. H.	May 18. L.	May 19. H.	May 19. L.	May 21. H.	May 21. L.	May 23. H.	May 23. L.	May 24. H.	May 24. L.	Sales
Anaconda	100,000	$5.00	....	....	....	....	....	....	....	....	....	....	....
Blue Goose	5,000	100	17.00	14.00	20 00	16.00	20.00	16.00	16.00	14.00	....	....	40
Buckhorn	10,000	10.00	....	....	....	....	....	....	....	....	....	....	....
Caribou	100,000	1 00	.50	....	.40	....	.40	....	.40	....	....	....	....
Dominion	100,000	1.00	.40	.35	....	....	.40	....	....	....	....	....	....
Home	100,000	1.00	4 60	4.35	4.90	4.70	4 85	4.75	4 75	4.60	....	....	1,360
National	100,000	5.00	6.125	....	6.25	....	6.375	6.125	6.50	....	....	....	200
Petroleum	100,000	1 00	.50	....	....	....	.50	.35	.35	....	....	....	....
San Joaquin	100,000	1.00	....	....	....	....	....	....	....	....	....	....	....
West Lake	200,000	1.00	.80	.70	.75	....	.75	.65	.75	....	....	....	1,400
Yukon	100,000	2 50	1.15	1.00	1.05	1.00	1.10	.85	1 05	.85	....	....	500

* California and Producers Oil Exchanges. Total sales, 3,500 shares.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	May 31. H.	May 31. L.	June 1. H.	June 1. L.	June 2. H.	June 2. L.	June 4. H.	June 4. L.	June 5. H.	June 5. L.	June 6. H.	June 6. L.	Sales
Adven'r'e,Cons	$25	100,000	....	....	....	....	....	....	4.00	....	4.00	....	4 00	....	370
Aetna, Cons. g.	5	100,000	....	....	....	....	....	....	....	....	....	2.00	....	....	10
Allouez	25	80,000	....	....	....	....	....	....	....	....	....	1.50	1.25	1.25	1,900
Amal. Cop.	100	750,000	88.25	88.00	89.50	88 50	90	89 50	90.50	89.50	90 00	89.50	89 50	89.00	1,087
Am. Z. L. & S.	25	60,000	....	....	....	....	....	....	12.00	....	....	....	....	....	100
Anaconda	25	1,200,000	....	....	....	....	....	....	....	....	....	....	40.50	....	5
Arcadian, c.	25	150,000	....	....	19 75	19 00	20.00	20.00	23.75	20.00	21.00	20.00	20.00	....	4,275
Arnold, c.	25	60,000	....	....	5.50	....	....	....	....	....	5.50	5 25	....	....	200
Ashbed	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Atlantic, c.	25	40,000	....	....	23 00	....	....	....	23.25	....	....	....	....	....	90
Baltic c.	25	100,000	....	....	19.50	19.00	9.50	....	....	....	....	....	....	....	475
Bingham, c. g.	10	190,000	10.25	1.00	10 25	....	10 00	....	10 13	....	....	....	....	....	300
Bonanza. Dev.g	10	800,000	1.00	....	....	....	....	....	1.0	....	1 00	....	1.0	....	715
Boston. q	10	100,000	....	....	....	....	....	....	2.75	2.50	....	....	....	....	400
Boston & C. C.	2	300,000	....	....	....	....	....	....	....	....	....	13½	....	....	200
Bos.&Mon.Tr.R	25	150,000	295	292	300	297	306	300	304½	295	297	....	298	....	426
British Col.	5	200,000	....	....	....	....	....	....	10.88	10.25	....	....	10.75	....	900
Butte & Bost., c	25	200,000	....	....	70.00	65.00	71 00	70 00	71 00	67 00	....	....	....	....	935
Cal. & Hecla, c.	25	100,000	705	693	*715	700	720	7'0	715	713	715	702	705	....	865
Centennial, c.	10	300,000	16.13	....	18.50	16 50	18.50	18.13	18.50	17.00	....	....	....	....	1,670
Cent'l-Eureka	25	90,000	23.00	22.50	....	....	....	....	....	....	23.50	23.00	23.50	22 75	728
Central Oil	25	100,000	....	....	....	....	....	....	....	....	....	....	....	....	875
Cochiti, g.	25	60,050	....	....	10.50	10.00	10.50	9.75	10.00	9 50	10.13	9.25	10.25	....	956
Cont.Zn.Mg&Sm	10	157,000	....	....	....	....	....	....	....	....	....	....	2 50	....	250
Copper Range	10	110,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Crescent. s.	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Dominion Coal.	25	100,000	43.2	....	....	....	42.50	42 25	41.50	40 00	....	....	41 00	....	710
do. pref.	100	180,000	116¾	....	116¾	....	....	....	....	....	....	....	1 7	....	92
Elm River	100	20,000	....	....	4.13	4 00	4.25	....	4.00	....	4.00	....	....	....	1,452
Federal Steel	12	100,000	6.63	84 63	37 13	36.50	36.50	35.25	34 63	34.25	34.13	33.75	34 00	33 50	4,385
do. pref.	100	464,843	69.00	68 00	69.00	....	....	....	68 00	66.50	67.75	....	....	....	334
Franklin, c.	100	532,610	13 00	12.75	13.50	12 50	14.00	....	....	....	13.50	....	13.00	....	576
Humboldt	100	....	....	....	....	....	....	....	....	....	....	....	.75	....	50
I. Royal Con. c.	25	100,000	26.00	25.00	26.00	25 50	....	....	25.75	....	....	....	24.25	24 00	1,390
Mass Con.	25	100,000	....	....	7.00	6 88	....	....	6.50	....	7 00	6 50	6.75	....	435
Mayflower	25	100,000	....	....	....	....	2.75	2.50	....	....	....	....	....	....	150
Merced, g.	15	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Michigan	25	100,000	....	....	4.50	....	4.50	....	4.50	....	4.50	....	4.50	....	245
Mohawk, c.	25	100,000	14.00	....	16.00	13.75	14.00	....	14 50	....	4.50	13 75	....	....	515
Montana C & C	5	100,000	....	....	....	....	8 00	....	....	....	....	....	....	....	85
N. A. Gold Dreg.	10	100,000	2.50	....	....	....	2.13	....	....	....	....	....	....	....	200
Old Colony	25	100,000	3.00	....	3.00	....	....	....	....	....	....	....	....	....	170
Old Dominion,c	25	150,000	17.00	....	18.50	7.00	19.00	18 00	18 50	17.75	....	....	17.50	....	1,910
Osceola, c.	25	83,000	....	....	62 75	62 00	63.00	62.75	62 00	61.00	....	....	61 50	61.25	1,070
Parrot, s & c.	25	229,850	42.50	41 50	43.00	42.00	44 13	43.25	43.00	41 50	42.00	41.50	42.00	41.50	3,508
Pioneer	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy, c.	25	100,000	....	....	136	....	137	....	137	....	135	....	135	....	91
Rhode Island	25	100,000	4.00	....	....	....	....	....	....	....	4 00	....	....	....	50
Santa Fe, g. c.	10	250,000	....	....	5 00	....	5 00	....	4 88	....	....	....	4.75	....	740
San. Ysabel, g.	5	130,000	1.25	....	1.25	....	1.25	....	1 25	....	1 25	....	.13	1.00	1,250
Tamarack, c.	25	60,000	....	....	194	192	....	....	.94	191	*187	....	184	183	118
Tecumseh	25	80,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Tri Mountain	25	100,000	....	....	7 25	7 00	....	....	....	....	....	....	7.00	....	165
Union C. L.	25	80,000	....	....	....	....	3.00	....	....	....	....	....	....	....	50
United States	25	250,000	8 50	....	....	....	9.13	8.00	9.25	....	....	....	....	....	225
U. S. Oil	25	100,000	15 50	....	16 00	....	18.00	....	....	....	16 00	15 50	16.00	15 50	460
Utah Cons.g. &	5	300,000	....	....	27.75	26.25	28.00	27.25	28 25	26.50	27.00	....	27.00	26 00	1,705
Victor	5	200,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Victoria	25	100,000	....	....	....	....	....	....	....	....	2 50	2.25	2.25	....	80
Washington	25	60,000	1 00	....	....	....	....	....	....	....	....	....	....	....	75
White Knob	100	50,000	....	....	....	....	....	....	....	....	18 00	....	....	....	10
Winona, c.	25	100,000	....	....	....	....	3.00	....	....	....	....	....	....	....	400
Wolverine, c.	25	60,000	....	....	39.88	37 50	39.00	....	39.00	....	39.00	....	....	....	812
Wyandotte	25	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....

† Official quotations Boston Stock Exchange. Total sales, 40,329. * Ex-dividend.

SALT LAKE CITY, UTAH.

June 2.

Stocks.	Shares	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$0.50	$0.60	Horn Silver	400,000	$25	$1.10	$1.50
Alice	400,000	25	.37½	.....	Joe Bowers	700,000	1	.08	.10
Buckeye	500,000	1	.01¾	.02¼	Joe Bowers Ext.	400,000	½	.00¾	.01¾
Bullion-Beck & Ch.	100,000	10	3.40	4 30	Little Pittsburg	400,000	5	.....	.01
Centennial Eureka	200,000	25	23.00	25.00	Lower Mammoth	150,000	1	.65	.66
Chloride Point	500,000	1	.05	.12	Mammoth	400,000	5	2 25	2.28½
Daisy	500,000	3	.00¾	.00¾	May Day	400,000	¾	1 08	1.09
Dalton	500,000	5	.02½	.02¾	Mercur	200,000	25	5 25	6 00
Dalton & Lark	2,500,000	1	.05	.07¾	Northern Light	400,000	5	.07¾	.08¾
Daly	150,000	20	1.80	1 90	Ontario	150,000	100	6.75	7 50
Daly West	150,000	20	17.01	17 08	Richmond-Am.	500,000	1	.08	.15
Dexter	200,000	5	.60	2.90	Sacramento	1,000,000	5	2½	.23½
Eagle	250,000	1	.....	.....	Silver King	150,000	20	45 00	.....
Eagle & Blue Bell	250,000	1	.80	.90	Star Consolidat'd	500,000	1	.40	.45
Four Aces	250,000	1	.04¾	.05¼	Sunbeam	250,000	1	.01	.....
Galena	100,000	10	.10	.30	Sunshine	250,000	10	06	20
Geyser-Marion	300,000	5	03	.03¾	Swansea	100,000	5	1 12½	5.00
Golden Eagle	400,000	1	.01¾	.02¼	South Swansea	150,000	1	1.19	1.21
Grand Central	250,000	1	5 63	5 67½	Utah	100,000	1	.40	.99
Homestake	400,000	1	.....	.....	Valeo	200,000	10	.79½	.82½

TORONTO, ONT.

Name of Company.	Par val.	May 30. B.	May 30. A.	May 31. B.	May 31. A.	June 1. B.	June 1. A.	June 2. B.	June 2. A.	June 4. B.	June 4. A.	June 5. B.	June 5. A.	Sales
Ontario:														
Golden Star	1	.15¾	.17	.....	.....	.15¾	.17	.13¾	.14¾	.14½	.16¾	.....	.....	27,650
Ham Reef	1	.09	.11	.....	.....	.09¾	.11	.09¾	.11	.09¾	.11	.....	.....	31,500
Olive	1	.10	.16	.....	.....	.08	.18	.08	.18	.10	.18	.....	.....	1,000
British Col.:														
Athabaska	1	.14	.23	.....	.....	.14	.25	.14	.25	.14	.24	.....	.....	....
Big Three	1	.03¾	.07	.....	.....	.03¾	.06	03	.04¾	.03	.05	.....	.....	500
Black Tail	1	.18	.23	.....	.....	.18½	.22	.17	.21	.16	.21	.....	.....	1,500
CaribooM'K	1	.99	93	.....	.....	.92	.99	92	.99	91	1.00	.....	.....	1,000
Crow's N. C.	25	36.00	45.00	.....	.....	38 00	45 00	38.00	45.00	38 00	50 00	.....	.....	....
Deer Trail	1	06¾	.07¾	.....	.....	.06¾	.07¾	05¾	.06¾	06	.06¾	.....	.....	11,500
Dom. Coal	25	42.00	44.25	.....	.....	42 00	44.00	42.00	44.00	42.0	44.25	.....	.....	10
Eve Star	1	.09	.11¾	.....	.....	.09	.11¾	.09	.11¾	.09	.11¾	.....	.....	500
Fairview	1	07¾	.08¾	.....	.....	.07¾	.09	.06¾	.08	.06	.07	.....	.....	1,000
Iron Mask	1	.30	40	.....	.....	30	40	30	.40	.30	.40	.....	.....	....
Knob Hill	1	.47	.60	.....	.....	.46	.60	.46	.60	.47	.60	.....	.....	....
Minnehaha	1	.01

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val	May 28. B.	May 28. A.	May 29. B.	May 29. A.	*May 30. B.	*May 30. A.	May 31. B.	May 31. A.	June 1. B.	June 1. A.	June 2. B.	June 2. A.	Sales.
Acacia	$1	.36¾	.36¾	.36¼	.37			.36½	.36¾	.35¾	.36	.35¾	.36	64,166
Alamo	1	.15	.15¼	.15	.15¼			.15		.15		.16		2,000
Am. Con	1	.05½	.06	.05¾	.06			.05¾	.06	.05¾	.06	.05¾	.06	1,060
Anaconda	1	.32¼	.34	.33	.34			.35	.35¼	.34¼		.35	.35¼	5,550
Anchor	1	.03¾	.03¾	.03¼	.03¾			.03½	.03¾	.03½	.03¾	.03½	.03¾	2,000
Anchorial	1	.85		.85				.85		.85		.85		1,300
Antelope	1	.03	.03¼	.03	.03¼			.03	.03¼	.02¾	.03½	.03	.03¼	8,000
Aola	1	.05¾	.06¼	.05¾	.06½				.06¾	.06¾	.06	.05¾	.06	1,000
Arcadian	1	.05½		.05½				.05¾		.05		.05		
Arg'ntaum J	1	.19	.20	.19					.20½		.20			100
Banner	1	.04½	.04½	.04¾	.04½			.04¼	.04½	.04¼	.04½	.04¼	.04½	
Battle Mt.C.	1	.29¾	.29¾	.29½	.29¾				.30¼	.29¾	.30	.29¾	.30¼	3,500
Ben Har	1	.07	.07½	.07	.07½			.07	.07¾	.07	.07¼	.07	.07¼	7,000
Black Bell	1	.11¾	.11¾	.11¼	.11¾			.11	.11¾	.11	.11¾	.11	.11¾	12,000
Blue Bell	1	.12¾	.13¾	.12¼	.13			.12¼	.13¾	.12	.12½	.12	.12¾	8,500
Bob Lee	1	.05¾	.05¾	.05¼	.06			.05¾	.06	.05¾	.05¾	.05¾	.05¾	101 000
Buckhorn	1	.06¾	.07	.06¾	.07			.06¾	.07	.06¼	.07	.06¼	.07	1,500
Cadillac	1	.02½	.02¾	.02½	.02¾			.02	.02¼	.02	.02¼	.02	.02¼	20,000
Central C'n	1	.05¾		.05¼	.06¼			.06	.06¼			.06	.06¼	3,000
Champion	1	.07¾	.07¾	.07¼	.07½			.07¾	.07¾	.07¾	.07¾	.07¾	.07¾	16,000
Chicolo	1	.03¾	.03½	.03	.03¾			.03	.03¼	.03	.03	.03	.03¼	11,000
C.K.&N	1	.02¾	.02¾	.02½	.02¾			.02¾	.02½	.02½	.02¾	.02¾	.02¾	4,000
C.C.Col'bia	1	.08	.08¼	.08½	.08¾			.08¼	.08¾	.07¾	.08½	.08¼	.08¾	29,800
C.C.G.Ext	1	.08¾	.09	.08				.08	.09	.09	.09¾	.08	.09	1,000
C.C. & Man	1	.10¾	.10¾	.10¾	.11			.11¾	.11	.10¾	.11	.10½	.11	10 000
Copper Mt.	1	.04¾	.05	.04¾	.05			.04¾	.04¾	.04¼	.04½	.04¾	.04¾	13,000
Creede&CC	1	.14½		.14½	.14¾			.14	.15	.14	.14½	.14	.14½	600
C. C. Con	1	.14¾	.14¾	.14¾	.14¾			.14½	.14¾	.14¾	.14¾	.14¼	.14¾	14,600
Dante	1	.13¾	.14	.13½	.14			.13½	.13¾	.13¾	.13¾	.13¾	.13¾	8,000
Des Moines	1	.06¾		.06¾				.06¾		.06¾		.06¾		23,000
Eclipse	1	.08	.08¼	.08				.06	.08¼	.08	.08	.08	.08¼	4,500
ElktonCon	1	1.50¼	1.50¼	1.48½	1.49½			1.49	1.49¼	1.49¾	1.49¾	1.49	1.49¾	34,057
El Paso G	1	.43¾	.44					.44	.44½	.44	.44¼	.44	.44¾	13,300
Enterprise	1	.24	.23½	.22¾	.23½			.22	.23¾	.22	.23	.22	.22¾	1,500
F.Rawlings	1	.43	.46	.43	.46			.40	.44	.40	.44	.40	.44	1,000
Favorite	1													
Findley	1	.15	.15½	.15	.15½			.15	.15¾	.15¾	.15¾	.15	.15½	100
Garf. Con	1	.16½	.18	.18					.18		.18			2,875
Golden Fl	1	.33		.33				.30		.30		.30		700
Gold Hill	1	.03½	.03¾	.03½	.03¾			.03¾	.03¾	.03¾	.03¾	.03½	.03¾	3,500
Gold.Sov'n	1	.10	.10¼	.10	.10¾			.09¾	.10	.09¾	.10¼	.09¾	.10¼	4,000
Hayden	1	.02	.02¼	.02	.02¾			.02	.02¼	.02	.02¼	.02	.02¼	7,000
Ida May	1	.29	.29½	.33½	.30¾			.29¾	.30	.29½	.29¾	.24¾	.30	59,5 10
Indep'ndce	1	.72¼	.72¾	.71¾	.71¾			.71¾	.72	.67¾	.68	.67¾	.68	125,700
Ing. Con	⅛	.24¾	.24¾	.24	.24½			.23¾	.24¼	.23	.24¼	.23½	.24½	44,100
Isabella	1	1.25¼	1.25¾	1.25¼	1.25¾			1.26¾	1.27	1.23	1.25½	1.26¾	1.27	37,000
Jack Pot	1		.65¾	.64	.66			.64¾		.65	.64¾			4,000
Josephine	1	.02¾	.04¾	.02¾	.02¾			.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	4,000
Key West	1	.03¾	.04	.03¾	.04			.03¾	.03¾	.03¼	.03¾	.03½	.03¾	7,000
Lexington	1	.18¾	.18¾	.18½	.18¾			.17¾	.17¾	.17¾	.17¾	.17¾	.17¾	50,500
Magnet R	1	.03¾	.03¾	.03¾	.04			.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	5,000
Margaret	1	.02¾	.03	.02¾	.03			.02¾	.03	.02¾	.03	.02¾	.03	1,000
Margery	1	.04¼	.04¾	.04¼				.04¼	.04¾	.04¼	.04¾	.04¼	.04¾	
Matoa	1	.29¾	.30	.19¾	.31			.30¾		.33	.33¾	.30¾		14,500
Midway	1	.06¾	.06¾	.06¼	.06½			.06	.06¼	.06	.06¼	.06	.06½	
M. J T.	1	.04¼	.04¾	.04¼	.04¾			.04¾	.04¾	.04¼	.04¾	.04¼	.04¾	1,000
Mobile	1	.03¾	.03¾	.03¾				.03¾		.03¾		.03¾		16,000
Moll.Dwyer	1	.03¾	.03¾	.03¼	.04			.03¼	.04	.03¼	.04	.03¼	.04	64,000
Mollie Gib	1	.23	.23½	.24	.25			.23	.25	.24	.25	.23	.25	
Monarch	1	.08¼	.09¾	.08¼	.08¾			.08¼	.08¾	.08¼	.08¾	.08¼	.08¾	18,000
Montreal	1													
Moon-A'c'r	1													
Morning S	1													
Mtn.Beauty	1	.10	.10¾	.10	.10¾			.10	.10¾	.10	.10¾	.10	.10¾	30,000
Mt. Rosa	1							.75	.80			.80		
National	1	.09	.09¼	.09¼	.09¾			.09¼	.09¾	.09¾	.09¾	.09¼	.09¾	127,000
Nellie V	1	.11¾	.11¾	.11¾	.12			.12½	.13	.12¼	.12¾	.12¼	.13	27,000
New Haven	1	.08¼	.09	.08¾	.09			.08¼	.09	.08¾	.09	.08¾	.09	13 000
OliveB'nch.	1	.06¾	.07½		.07			.06¾	.07	.06¼	.06¾	.06¾	.07	11,000
Oriole	1	.04¾	.05	.04¾	.05			.04¾	.05	.04¾	.05	.04¾	.05	8,000
Orphan	1	.20		.20					.20	.19	.20	.20		6,100
Pelican	1		.03	.02¾	.03			.03	.03	.02¾	.03	.02¾	.03	11,000
Pharmacist	1	.12¾	.12¾	.12½	.12¾			.11¾	.11¾	.11¾	.12	.11¾	.11¾	11,500
Pilgrim	1	.13¼	.13¾	.13	.13¾			.13	.13¾	.13	.13¾	.13	.13¾	
Pinnacle	1	.22	.22½	.20					.22					7,000
Portland	1	3.31	3.35	3.35	3.38			3.36	3.40	3.33	3.40	3 36	3.40	4,400
Prince Alb.	1	.04¾	.05¾	.04½	.04¾			.04¼	.04¾	.04¼	.04¾	.04¼	.04¾	12,500
Princess	1	.06½	.06¾	.06¾	.06¾			.06¼	.06¾	.06¾	.06¾	.06¾	.06¾	5,000
Progress	1	.06¾	.06¾	.06¼	.06¾			.06¼	.06¾	.06¼	.07	.06¼	.07	6,000
Pythias	1	.06	.06¼	.06½	.06¾			.06	.06¼	.06		.06		
Raven	1	.76¼	.76¾	.76				.76	.77	.76	.77	.76	.77	5,900
Republic	1	.06¾	.06¾	.06¾	.06¼			.06¾	.06¾	.06¼	.06¼	.06¼	.04¾	5,000
Rob'tBurns	1	.04¾	.05	.04¾				.04¾	.05	.04¾	.04¾	.04¾	.04½	5,000
Rose Maud.	1		.10¼	.10	.10½			.04¾	.05	.05¾	.10	.09¾	.10	10,000
Rose Nicol.	1	.13¾	.14	.13¾	.14			.14		.14	.14½	.14	.14½	32,500
Silver Gold.	1	.01¾	.01¾	.01¾	.01¾			.01	.01¾	.01¼	.01¾	.01¼	.01½	5,000
Specimen	1	13	.13¾	.12¾	.12¾			.13	.13½	.13	.13¾	.13	.13¾	22,000
Tornado	1	.52¾	.52¾	.52	.52¾			.52¾	.52¾	.52¼	.53	.52¼	.52¾	21,000
Touraine	1													
Trachyte	1	.07	.07¼						.07¼	.06¾	.07¼	.06¾	.07¼	13,000
Uncle Sam	1	.04¾	.05					.04¾	.05	.04¾	.05	.04¾	.05	1,000
Union	1	.42	.48		.45			.40	.43	.41¾	.45	.40	.48	2,209
Vindicator	1	1.40	1.42	1.43	1 44			1.45	1.52	1.45	1.49	1 45	1.52	4,100
Work	1	.33¾	.33¾	.33¾	.33¾			.33¾	.33¾	.3½	.33¾	.32½	.33¾	8,500
Zenobia	1		.16	.15	.16				.16			.16		2,000

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,275,230 shares. * Holiday.

MONTREAL CANADA.*

NAME OF COMPANY.	Par Val	Week, June 5. H.	Week, June 5. L.	Sales.	NAME OF COMPANY.	Par Val	Week, June 5. H.	Week, June 5. L.	Sales.
Big Three	$1	.04¼	.03¼	57,200	Monte Christo	$1	.04¼	.03	
California	1	.10¾	.07	5,000	Montreal G. F		.06	.03¾	
Can. Gold Fields	0.10	.08	.03¼	500	Montreal-London	0.24	.26	.24	8,100
Decca	1	.06	.05	1,250	Okanogon	1			
Deer Trail Con	1	.07¼	.06¼	9,750	Payne	1	1.10	1.02	500
Giant	1				Rambler-Cariboo	1	.27¾	.17	
Golden Star	1	.18	.10	6,250	Republic Con	1	1 00	.90	100
Gold Hills Dev	1	.04¾	.02		Slocan-Sovereign	1	.30	.20	
Knob Hill	1	.58	.49		Virtue	1	.98	.97	4,700
Majestic	1								

*Montreal Stock Exchange. Total sales, 88,350 shares.

MEXICO.

May 26.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Durango:					**Hidalgo:**				
Barradon y Cab	2,400		$40	$40	Real del Monte	2,354	10.00	550	600
Candelaria de Pan	1,200		20	20	San Francisco He	6,000	3.00	170	145
Capuzaya Guan	2,400		15	30	Soledad	960	5.00	270	230
Restauradora	10,000		10	20	Sorpresa	960	7.50	290	280
Guanajuato:					Union Hacienda	2,000	5.00	200	250
Angustias	2,400	5.00	190	180	**Mexico:**				
Cinco Senores y An	2,000	15.00	350	340	Coronas	500		75	75
Guadalupe Hacien a	10,000	2.00	205	200	Esperanza y An	3,000	10.00	1,300	1,250
Trinidad, aviadora	2,000		15	6	**Michoacan:**				
do. aviada	400		15	10	Luz de Borda ava	4,000		22	18
Zona Minera de Pos	2,400		6	8	**S. Luis Potosi:**				
Hidalgo:					Concep. y An	2,400		250	255
Amistad y Concord	9,600	1.47	22	20	**Zacatecas:**				
Arevalo	730		200	300	Asturiana y An	3,500	10.00	145	140
Bartolome de Med	2,000	2.00	65	70	Cabezon	2,400		15	15
Carmen	1,100	7.75	250	200	C'delar. de Pinos	2,500		230	240
Las Ca Maravillas	800		130	100	Palma de Somb	2,400		50	40
Pabellon	800	27.89	30	30					

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	May 26. B.	May 26. A.	May 28. B.	May 28. A.	May 29. B.	May 29. A.	May 30. B.	May 30. A.	May 31. B.	May 31. A.	June 1. B.	June 1. A.	Sales.
Acacia	1			.36¼						.36¾		.36	.36¼	1,000
Alamo	1		.15¼		.15	.14¾	.15¼				.15			1,000
Aola	1	.05½	.07									.05¾	.05¾	
Arg. J	1				.20¾								.21	
Bankers	1				.15									500
Blue Bell	1											.12¾	.13	1,000
Dictator	1	.02½	.03	.02½	.02¾					.02½	.03¼	.02½	.03	
Elkton	1			1.50						1.49¾				
Enterprise	1			.22								.22¼	.22¾	1,000
Gold Sov'n	1				.20¼							.09¾	.10	
Indepen'ce	1	.71¾	.72	.72¼		.71¾				.71¾				5,000
Iron Clad	1	.06¾	.06¾	.06¼	.06¾	.06¾				.07	.07¼	.06¾	.06¾	7,000
Isabella	1	1.25	1.28	1.25¼	1.27½	1.25¼	.04			1.27	1.27¾	1.28¾	1.29¼	
Magnet R'k	1				.03¾							.03¾	.04	1,000
National	1	.08¾	.09¼			.09	.09¼			.09¾	.09¾	.09¾	.09¾	1,000
New Haven	1			.08¾	.09¼					.09¾	.09¾	.09¾	.09¾	3,000
New Zeal'd	1	.45		.38										
Old Gold	1		.02	.01¾	.02	.01¾	.02					.02	.01¾	1,000
Omega	1	.02	.02¼	.02	.02¼	.02	.03¾			.02	.02¼			5,000
Ophir	1			.63						.62	.70	.61		
Puritan	1	.01¾	.01¾	.01¾	.01¾	.01¾				.01¾	.01¾	.01¾	.01¾	7,000
Union	1				.40							.42	.46	
Vindicator	1	1.41			1.42					1.45		1.45		1,500
Wh.of Fort	1	.01¾	.02	.01	.03					.01½	.02	.01¼		18,000

‡ Official Quotations Denver Stock Exchange Total sales, 54,000 shares.

PARIS.

May 17.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.		Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	1,968.00	1,949.00
" " Firminy	"	" "	3,000,000	500	125.00	3,650.00	3,525.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	530.00	540.00
" " Huta-Bank	Russia	Iron & steel		500		4,700.00	4,575.00
" " la Marine	France	Steel mfrs	20,000,000	500	50.00	1,770 00	1,665.00
Anzin	"	Coal			220.00	6,950.00	6,800.00
Boleo	Lower Cal	Copper		500	1.07	2,950.00	2,990.00
Briansk	Russia	Coal & Iron		500		1,242.50	1,201.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	35.50	37.00
Courrieres	France	Coal	600,000	300	70.00	3,115.00	3,070.00
Dombrowa	Russia	Coal		500	12.50	1,069.00	1,040.00
Donetz	"	Steel				1,000.00	1,127.50
Dynamite Centrale	France	Explosives		500	25.00	450.00	450.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,290.00	1,298.00
Fraser River	Brit. Col'mb	Gold	250,000	25		11.00	
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	174.00	170.50
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	591.00	596.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,300.00	1,280.00
Metaux, Cie. Fran. de	France	Metal d'iers	25,000,000	500	30.00	475.00	307.00
Mokta-el-Hadid	Algeria	Iron	18,812,500	500	40.00	1,220.00	1,225.00
Naphte Baku	Russia	Petroleum				815.00	824.00
Napthe, Le	"	"				1,800.00	1,840.00
Napthe Nobel	"	"				657.50	665.00
" parts	"	"				13,362.00	13,350.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	10.00	497.00	472.50
Penarroya	Spain	Coal, etc		500	65.00	2,760.00	2,760.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		4.00	4.50
Salines de l'Est	France	Salt		500	6.50	260.00	280.0
Salines du Midi	France	" etc		500	25.00	1,020.00	1,010.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	45.00	771.00	750.00

LONDON.

May 25.

NAME OF COMPANY.	Country.	Author-ised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d.	s.d.		£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	17 6	1 0 0
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	May, 1900	16 3	18 9
*Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	"	4 15 0	5 0 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	8 8	8 11 3
Idaho	Idaho	400,000	1 0 0	6	May, 1900	3 6	4
Elkhorn Priority (New)	Colorado	87,500	1 0 0	2 0	June, 1898	1 3	3 9
Golden Gate, g	California	80,000	1 0 0			1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	1 0	May, 1899	1 6	2 6
Hall Mines, c., s	British Col	300,000	1 0 0	1 0	May, 1899	1 6	2 6
Le Roi, g	"	1,000,000	5 0 0	5 0	Nov., 1899	6 8	6 16 8
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	7 6	12 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	2 6	3 6
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	5 11 3	5 13 9
Newfoundland	Newfoundland	250,000	1 0 0			5 0	10 0
Palmarejo & Mexican, g	Mexico	700,000	1 0 0			1 0	1 6
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 16 3	2 18 9
Copiapo, c	Chile	200,000	2 0 0	4 0	Dec., 1899	4 5 0	4 10 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 11 3	1 13 9
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	Dec., 1899	1 8 0	1 10 0
UtahCon.,g(High'ndBoy	Utah	800,000	1 0 0	rts.	Mar., 1898	5 5 0	5 10 0
Velvet, g	BritishCol'mbia	100,000	1 0 0			1 0 0	1 10 0
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 13 9	1 16 3
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	13 3	13 9
Linares, l	Spain	45,000	3 0 0	15 0	Mar., 1900	9 0 0	10 0 0
*Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	4 2 6	4 7 6
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	May, 1900	52 15 0	53 0 0
" pref	"	1,625,000	5 0 0	2 6	"	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	9 0 0	9 2 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	2 17 6	2 18 9
Broken Hill Prop., s	N.S. Wales	384,000	8 0 0	1 0	Apr., 1900	2 5 6	2 6 6
Great Boulder Prop	W. Australia	175,000	2 0 0	6	Apr., 1900	1 11 9	1 12 3
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	May, 1900	8 10 0	8 12 6
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	May, 1900	10 2 6	10 5 0
Kalgurlie, g	"	120,000	1 0 0	rts	Oct., 1899	5 0 0	5 2 6
*Lake View Consols, g	"	250,000	1 0 0	10 0	May, 1900	9 10 0	9 12 6
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	5 0	July, 1900	8 10 0	8 15 0
*Mt. Morgan, g	Queensland	1,000,080	1 0 0	7	May, 1900	4 18 9	5 1 3
*Waihi, g	New Zealand	320,000	1 0 0	2 6	June, 1900	10 7 6	10 10 0
*Champion Reef, g	Colar Fields	220,000	10 0 0	4 0	May, 1900	6 2 6	6 5 0
*Mysore Gold, g	"	250,000	10 0 0	5 6	Mar., 1900	6 7 6	6 10 0
Nundydroog, g	"	242,000	1 0 0	2 6	Mar., 1900	3 8 9	3 11 3
Ooregum, g	"	145,000	1 0 0	2 0	apr., 1900	3 16 3	3 18 9
" pref. g	"	120,000	1 0 0	2 0	" 1900	4 17 6	5 0 0
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts	May, 1899	3 12 6	3 13 9
Cape Copper, c	"	600,000	1 0 0	5 0	June, 1900	6 0 0	6 2 6
" pref	"	150,000	2 0 0	5 0	" 1900	5 10 0	5 15 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug , 1899	4 17 6	5 2 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 5 0	1 10 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	13 0 0	13 10 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Sept., 1899	27 5 0	27 6 3
Ferreira, g	Transvaal	90,000	1 0 0	90 0	Aug., 1899	19 0 0	20 0 0
Geldenhuis Deep, g	"	250,000	1 0 0	8 0	Aug., 1899	9 0 0	9 10 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	6 2 6	6 7 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	7 0 0	7 5 0
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Apr., 1900	15 10 0	16 0 0
Johannesburg Con. Invst.	So. Africa	2,750,000	1 0 0	2 0	Nov., 1899	1 13 9	1 16 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	5 15 0	6 5 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	2 17 6	3 2 6
May Con., g	"	250,000	1 0 0	6 0	Aug., 1899	4 0 0	4 2 6
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July, 1899	4 17 6	5 2 6
Namaqua, c	Cape Colony	200,000	2 0 0	4 0	Dec., 1899	5 11 3	5 13 9
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 13 9	3 16 3
Rand Mines, g	So. Africa	490,000	1 0 0	16 0	Aug., 1899	38 13 9	38 16 3
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 0 0	8 5 0
Sheba, g	"	1,100,000	1 0 0	6	July, 1899	1 8 9	1 5 0
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	5 3 9	5 6 3
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	3 17 6	4 2 6

*Ex-dividend.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Ætna Con., q	Cal	$500,000	100,000	$5	$30,000	$225,000	April 1900	.15
2	Alabama Coal & Iron, pf	Ala	2,500,000	25,000	100	87,500	87,500	May 1900	1.75
3	Alaska-Mexican, g	Alask	1,000,000	180,000	5	36,000	465,031	April 1900	.10
4	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	150,000	4,370,000	April 1900	.37½
5	Alice, g. s	Mont.	10,000,000	400,000	25		1,075,000	April 1898	.05
6	Alliance, g	Colo.	500,000	450,000	1		31,500	Dec 1899	.07
7	Amalgamated, c	Mont.	75,000,000	750,000	100	3,000,000	4,500,000	April 1900	2.00
8	Amanda, g	Colo.	1,000,000	1,000,000	1	10,000	10,000	June 1900	.01
9	Amazon, g	Colo.	600,000	600,000	1	102,000	121,882	May 1900	.10
10	American Coal	Md.	1,500,000	60,000	25	75,000	802,500	Mar 1900	1.25
11	American Gold, g. s. c. l	Colo.	3,000,000	300,000	10		446,000	Dec 1899	.04
12	Amer. Sm. & Ref., pref	U. S.	32,500,000	325,000	100	1,263,925	1,832,675	April 1900	2.14
13	Am. Steel & Wire, pf	U. S.	40,000,000	400,000	100	2,100,000	4,900,000	July 1900	1.75
14	Am. Steel & Wire, com	U. S.	50,000,000	500,000	100	1,750,000	1,750,000	July 1900	1.75
15	Am. Zinc, Lead & Sm	Mo	2,500,000	60,000	25	60,000	180,000	Jan 1900	1.00
16	Anaconda Copper	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April 1900	2.00
17	Anchoria-Leland, g	Colo.	600,000	600,000	1		198,000	April 1899	.03
18	Anglo-Mexican, g	Mex.	2,001,625	400,230	5		1,825,048	Dec 1899	.24
19	Apollo Con., g	Alask	1,000,000	100,000	10	70,000	210,000	Jan 1900	.07
20	Appie Ellen, g	Colo.	600,000	600,000	1		25,000	Aug 1898	.01
21	April Fool, g	Nev.	500,000	500,000	1		16,000	Oct 1899	.01
22	Argentum-Juniata, g	Colo.	1,300,000	650,000	2		156,000	Oct 1895	.03
23	Argonaut, g	Cal	2,000,000	200,000	10	70,000	490,000	May 1900	.05
24	Arizona Copper	Ariz.	3,190,550			421,153	1,309,572	Mar 1900	1.32
25	Associated, g	Colo.	1,250,000	1,250,000	1		84,000	Feb 1899	.01
26	Atlantic, c	Mich.	1,000,000	40,000	25	80,000	860,000	Feb 1900	2.00
27	Aurora, i	Mich.	2,500,000	100,000	25		890,000	June 1899	.50
28	Bald Butte, g. s	Mont.	250,000	250,000	1		769,648	Dec 1899	.03
29	Bankok Cora Belle, s	Colo.	600,000	600,000	1		107,510	July 1896	.01
30	Battle Mtn. Con., g	Colo.	2,500,000	2,500,000	1				
31	Big Seven, g	Cal	100,000	100,000	1		6,000	April 1898	.03
32	Big Six, g. s	Colo.	500,000	500,000	1		15,000	May 1898	.00½
33	Boston-Aurora, pref	Mo	800,000	32,000	25	37,120	66,160	May 1900	.50
34	Boston & California	Cal	600,000	600,000	1		72,000	June 1899	.06
35	Boston & Colo. Smelting	Colo.	750,000	15,000	50	22,500	292,500	April 1900	.75
36	Boston Duenweg, z	Mo	1,000,000	40,000	10	20,000	52,000	May 1900	.10
37	Boston Get There, z	Mo	250,000	22,500	10	11,250	22,500	May 1900	.10
38	Boston-Little Circle, z	Mo-K	1,000,000	100,000	10	50,000	130,000	May 1900	.10
39	Boston & Mont. Con	Mont.	3,750,000	150,000	25	2,700,000	17,200,000	May 1900	10.00
40	Boston Providence, z	Mo	150,000	15,000	10	3,750	11,250	May 1900	.05
41	Boston, q	Cal	1,000,000	100,000	10	10,000	20,000	Jan 1900	.10
42	Boston Sunflower, z	Mo	150,000	15,000	10		4,500	Oct 1899	.30
43	Breece, i	Colo.	5,000,000	200,000	25	10,000	80,000	Feb 1900	.05
44	Buffalo Hump, g	Idaho	2,500,000	250,000	10	125,000	125,000	June 1900	.10
45	Bullion-Beck & Champ	Utah.	1,000,000	100,000	10	50,000	2,488,000	May 1900	.10
46	Bunker Hill & Sullivan	Idaho	3,000,000	300,000	10	195,000	906,000	May 1900	.07
47	Calumet & Hecla, c	Mich.	2,500,000	100,000	25	3,000,000	69,850,000	June 1900	10.00
48	Cambria Steel	Pa.	16,000,000	320,000	50	230,000	1,440,000	May 1900	.50
49	Cariboo-McKinney, g	B. Col	800,000	800,000	1		311,965	June 1899	.01½
50	Centen l-Eureka, g. s. l. c	Utah.	5,000,000	100,000	25	117,700	2,267,700	April 1900	1.00
51	Center Creek, l. z	Mo	1,000,000	100,000	10	16,000	10,000	Feb 1900	.10
52	Central Lead, l	Mo	1,000,000	10,000	100	25,000	167,000	May 1900	.50
53	Champion, g. s	Cal	340,000	34,000	10		321,700	Nov 1899	.25
54	Charleston, p. r	S. C.	1,000,000	10,000	100		200,000	June 1899	2.00
55	Cloverdale, z	Mo	1,000,000	100,000	10	30,000	30,000	April 1900	.20
56	Colonial, l	Mo	1,000,000	1,000,000	1		10,000	Aug 1899	.01
57	Colorado Smelting	Mont.	1,000,000	100,000	10		1,945,000	Jan 1899	1.00
58	Columbia, l	Mo	500,000	48,500	10	9,700	9,700	May 1900	.10
59	Commodore, g	Colo.	1,200,000	1,200,000	1		432,000	Jan 1899	.04
60	Commonwealth, z., pref	Mo	500,000	100,000	5	30,000	50,000	June 1900	.05
61	Consolidated Gold Mines	Colo.	1,000,000	1,000,000	1	40,000	50,000	May 1900	.01
62	Consolidation Coal	Md.	10,250,000	102,500	100	205,000	5,921,650	Feb 1900	2.00
63	Cons. Zinc & Lead, pf	Mo	400,000	400,000	1	8,000	8,000	Jan 1900	.20
64	Continental, z	Mo	1,500,000	150,000	10				
65	Cordell, z. l	Mo	300,000	60,000	5	15,000	18,000	May 1900	.05
66	Cripple Creek Con., g	Colo.	2,000,000	2,000,000	1	160,000	160,000	Mar 1900	.08
67	Cresus, g	Cal	1,000,000	190,000	5	45,600	93,100	June 1900	.06
68	Crowned King, g. s. l	Ariz	6,000,000	600,000	10		242,760	May 1899	.02
69	Dalton & Lark, g. s. l	Utah.	2,500,000	2,500,000	1		87,500	Mar 1898	.00½
70	Daly, g	Utah.	3,000,000	150,000	20		2,925,000	Mar 1897	.25
71	Daly West, g	Utah.	3,000,000	150,000	20	225,000	345,000	May 1900	.25
72	Damon, g	Colo.	2,000,000	2,000,000	1				
73	Deadwood-Terra, g	S. D.	5,000,000	200,000	25		1,350,000	May 1898	.15
74	Dee Trail Con., g	Wash	3,000,000	3,000,000	1		55,000	Dec 1899	.00½
75	De Lamar, g. s	Idaho	2,000,000	400,000	5	48,000	2,394,000	May 1900	.12
76	Della S., g	Colo.	1,000,000	1,000,000	1		60,000	Jan 1897	.01
77	Delta, l. z	Mo	100,000	100,000	1	4,475	8,575	May 1900	.01
78	Desloge Con., l	Mo	1,000,000	100,000	10	20,000	70,000	May 1900	.20
79	Dixie, g	Utah.	125,000	125,000	1	10,000	10,000	April 1900	.02
80	Doe Run, l	Mo	500,000	5,000	100	12,500	102,560	May 1900	.50
81	Dutch, g	Cal	1,500,000	130,000	10		39,000	Feb 1898	.05
82	Eldorado, g	Cal	1,000,000	100,000	10		10,000	July 1899	.10
83	Elkhorn, New, s. l	Colo.	437,500	87,500	5		1,325,000	June 1898	.48
84	Elkton Con., g	Colo.	1,250,000	1,125,000	1	33,750	754,461	Mar 1900	.03
85	El Paso, g. s	Colo.	900,000	900,000	1		12,393	Jan 1898	.01
86	Empire State-Idaho	Idaho	1,000,000	98,514	10	177,325	495,363	June 1900	.20
87	Enterprise, s. l	Colo.	500,000	500,000	1		900,000	Sept 1898	.05
88	Fanny Rawlings, g. s	Colo.	1,000,000	1,000,000	1		20,000	Aug 1899	.01
89	Favorite, g	Colo.	1,200,000	1,200,000	1	48,000	48,000	April 1900	.04
90	Federal Steel, pf	U. S.	100000,000	532,610	100	3,195,660	4,793,520	April 1900	3.00
91	Federal Steel, com	U. S.	100000,000	464,843	100	1,743,161	1,743,161	Mar 1900	2.50
92	Fern, g	B. Col	200,000	200,000	1		10,000	Jan 1898	.05
93	Ferris-Haggarty, c. g. s	Wyo.	1,000,000	1,000,000	1		5,000	Feb 1899	.00½
94	Florence, s	Mont.	2,500,000	440,000	5	22,000	252,000	April 1900	.05
95	Frisco Con., l. s	Idaho	2,500,000	500,000	5		920,000	Nov 1899	.25
96	Galena, s. l. g	Utah.	1,000,000	100,000	10		71,000	Sept 1897	.05
97	Garfield Con., g	Colo.	1,200,000	1,200,000	1		34,000	May 1899	.01
98	Geyser-Marion, g	Utah.	1,500,000	300,000	5		96,000	Sept 1898	.02
99	Gold Coin of Victor, g	Colo.	1,000,000	1,000,000	1	100,000	460,000	May 1900	.02
100	Gold Deposit, g	Colo.	500,000	500,000	1	10,000	10,000	Mar 1900	.02
101	Gold & Globe, g	Colo	750,000	750,000	1		51,625	July 1898	.00½
102	Gold King, g	Colo.	1,000,000	1,000,000	1	90,000	180,000	June 1900	.03
103	Gold Sovereign, g	Colo.	3,000,000	3,000,000	1				
104	Golden Cycle, g	Colo.	1,000,000	200,000	5	50,000	308,500	May 1900	.05
105	Golden Eagle, g	Colo.	500,000	500,000	1	5,000	25,000	June 1900	.01
106	Golden Fleece, g. s	Colo.	600,000	600,000	1		569,480	Feb 1897	.01
107	Golden Reward, g	S. D.	1,000,000	100,000	10		155,000	Feb 1898	.15
108	Golden Star, g	Ont.	1,200,000	1,200,000	1		45,500	July 1899	.00½
109	Grafton, g	Colo.	1,000,000	1,000,000	1		10,000	Oct 1899	.01
110	Grand Central, g	Utah.	250,000	250,000	1		666,250	Sept 1899	.24
111	Grand Gulch	Ariz.	250,000	240,000	1	9,600	9,600	April 1900	.01
112	Grass Valley Expl	Cal	100,000	30,000	2	37,500	67,500	May 1900	.25
113	Greater Gold Belt, g	Col	5,000,000	3,800,000	1	76,000	76,000	May 1900	.02
114	Gwin, g	Cal	1,000,000	100,000	10		86,500	Sept 1899	.25
115	Hall Mines, Ltd	B. Col	1,500,000	250,000	5		120,000	May 1899	.24
116	Hecla Con	Mont	1,500,000	30,000	50		2,190,000	Dec 1898	.50
117	Hidden Treasure, g	Cal	500,000	360,000	1		3,600	July 1899	.01
118	Holy Terror, g	S. D.	500,000	500,000	1	5,000	172,000	Jan 1900	.01
119	Home, g	Colo.	50,000	50,000	1	75,000	75,000	June 1900	.50
120	Homestake, g	S. D.	21,000,000	210,000	100	525,000	8,668,750	May 1900	.50
121	Horn-Silver, g. s. c. sp. l	Utah.	10,000,000	400,000	$25		$5,250,000	Mar 1899	.05
122	Idaho, g	Idaho	1,000,000	1,000,000	1	$8,188	8,188	April 1900	.01
123	Idaho, s. l	B. Col	500,000	500,000	1		202,000	Jan 1899	.05½
124	Independence Town & M	Colo.	1,250,000	1,250,000	1	50,000	50,000	June 1900	.01
125	International, z	Mo	1,000,000	1,000,000	1	30,000	30,000	June 1900	.01½
126	Iowa, g. s. l	Colo.	1,666,667	1,666,667	1	7,500	97,500	Jan 1900	.00¾
127	Iron Mountain, g. s. l. i	Mont.	5,000,000	500,000	10		507,500	April 1898	.02
128	Iron Silver, s l	Colo.	10,000,000	500,000	20		2,500,000	April 1899	.20
129	Isabella, g	Colo.	2,250,000	2,250,000	1	67,500	607,500	Mar 1900	.03
130	Jack Pot, g	Colo.	1,250,000	1,250,000	1		75,000	Dec 1899	.06
131	Jamison, g	Cal	3,900,000	390,000	10		50,700	April 1899	.10
132	Keystone, g	Colo.	1,500,000	1,500,000	1		35,000	Mar 1894	.01½
133	Klondike Bonanza, Ltd	Klond	750,000	52,750	5		12,000	Aug 1899	.24
134	Lake Superior Iron	Mich.	2,100,000	84,000	25		2,132,000	Feb 1899	1.00
135	Last Chance, s. l	B. Col	500,000	500,000	1		45,000	Apr 1899	.05
136	Last Dollar, g	Colo.	1,500,000	1,500,000	1	30,000	60,000	Feb 1900	.02
137	Le Roi, g	B. Col	5,000,000	200,000	5		1,305,000	Nov 1899	1.20
138	Lexington, g	Colo.	1,500,000	1,500,000	1				
139	Lillie, g	Colo.	1,250,000	250,000	5	45,117	349,300	April 1900	.05
140	Little Tiger, g	Cal	500,000	500,000	1	15,000	47,500	Feb 1900	.01½
141	Mammoth, g. s. c	Utah.	10,000,000	400,000	25	80,000	1,690,000	April 1900	.10
142	Marion Con., g	Colo.	5,000,000	500,000	10		300,000	May 1899	.01
143	Mary McKinney, g	Colo.	1,000,000	1,000,000	1	90,000	120,000	April 1900	.06
144	Maryland Coal, pf	Md.	1,885,005	18,850	100		546,619	Dec 1899	3.00
145	Matoa, g	Colo.	1,000,000	1,000,000	1		25,000	Dec 1898	.02½
146	Mercur, g	Utah.	5,000,000	200,000	25	75,000	1,441,000	April 1900	.12½
147	Missouri Zinc Fields, pf	Mo	400,000	16,000	25	16,573	31,885	April 1900	.16
148	Modoc, g. s	Colo.	500,000	500,000	1	25,000	170,000	May 1900	.01
149	Mollie Gibson, s. l	Colo.	5,000,000	1,000,000	5		4,080,000	Jan 1895	.05
150	Monarch, g	Colo.	1,000,000	1,000,000	1	120,000	120,000	April 1900	.12
151	Montana Coal & Coke	Mont.	5,000,000	200,000	25	60,000	60,000	April 1900	.30
152	Montana, Ltd., g. s	Mont.	3,300,000	657,128	5		453,700	April 1899	.12
153	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	160,000	1,520,000	May 1900	1.00
154	Montreal, g	Colo.	1,000,000	1,000,000	1		7,500	Nov 1898	.00¾
155	Monument, g	Colo.	300,000	300,000	1		18,124	Nov 1899	.01
156	Moon-Anchor Con., g	Colo.	1,750,000	600,000	1		261,000	Nov 1898	.07½
157	Moose, g	Colo.	600,000	600,000	1		186,000	Feb 1896	.01
158	Morning Star Drift, g	Cal	240,000	2,400	100		847,200	Nov 1899	10.00
159	Morse, g	Colo.	1,250,000	1,250,000	1		215,650	May 1899	.12
160	Mountain Beauty, g	Colo.	2,000,000	2,000,000	1				
161	Mountain Copper	Cal	6,250,000	250,000	25	660,000	1,833,750	April 1900	2.64
162	Mt. Rosa, g	Colo.	1,000,000	1,000,000	1		75,000	Dec 1899	.04
163	Mt. Shasta, g	Cal	100,000	20,000	5		6,000	May 1899	.30
164	Moulton, g	Mont.	2,000,000	400,000	5		500,000	Oct 1893	.05
165	Napa Con., q	Cal	700,000	100,000	7	40,000	1,080,000	April 1900	.20
166	National Lead, com	U. S.	15,060,000	149,054	100	149,054	1,341,486	Mar 1900	1.00
167	National Lead, pf	U. S.	15,000,000	149,040	100	521,640	10,057,640	June 1900	1.75
168	New Central Coal	Md.	1,000,000	50,000	20	20,000	490,000	April 1900	.40
169	New Idria, q	Cal	500,000	100,000	5	40,000	210,000	April 1900	.20
170	N. J. & Mo., z	Mo	250,000	2,500	100	6,000	6,000	May 1900	2.00
171	New York, Zinc	Mo	700,000	28,000	25	7,000	56,000	May 1900	.25
172	N. Y. & Hon Rosario, s. g	C. A.	1,500,000	150,000	10	75,000	1,237,000	May 1900	.10
173	North Star Mines	Cal	5,000,000	250,000	10		50,000	Nov 1899	.20
174	Nugget, g	Colo.	625,000	1,250,000	½		35,000	Aug 1898	.00½
175	Okanogan, g	Wash	62,500	1,250,000	5		3,125	Oct 1899	.00¼
176	Old Colony Zinc & Sm	Mo	1,100,000	68,329	10	33,332	33,332	April 1900	.25
177	Omega, g	Colo.	1,500,000	1,212,550	1	18,188	18,188	June 1900	.01½
178	Ontario, s. l	Utah.	15,000,000	150,000	100	90,000	13,662,500	April 1900	.30
179	Orphan Belle, g	Colo.	1,000,000	1,000,000	1		197,899	Dec 1899	.09
180	Original Empire, g	Cal	5,000,000	50,000	100		530,000	Oct 1899	1.00
181	Osceola, c	Mich.	2,500,000	93,000	25	279,000	3,359,500	June 1900	3.00
182	Parrot, c	Mont.	2,300,000	230,000	10	345,000	3,380,898	Jan 1900	1.50
183	Pennsylvania Coal	Pa.	5,000,000	190,000	50		4,050,000	May 1899	8.00
184	Pennsylvania Con, g	Cal	5,150,000	51,500	100	25,750	161,325	May 1900	.10
185	Pennsylvania Steel, pf	Pa.	1,500,000	15,000	100	26,250	52,500	Jan 1900	1.75
186	Petro, g	Utah.	1,000,000	200,000	5		32,000	Oct 1899	.02½
187	Pharmacist Con., g	Colo.	1,500,000	1,500,000	1		84,000	Jan 1898	.01
188	Pinnacle, g	Colo.	2,000,000	2,000,000	1				
189	Pioneer, g	Cal	1,000,000	100,000	10		62,500	Mar 1899	.12½
190	Pittsburg Coal, pf	Pa.	32,000,000	308,000	100	1,078,000	1,078,000	April 1900	1.75
191	Plumas Eureka, g	Cal	1,406,250	140,625	10	84,375	2,797,544	April 1900	.60
192	Portland, g	Colo.	3,000,000	3,000,000	1	330,000	2,887,080	May 1900	.02
193	Princess, g	Colo.	1,000,000	1,000,000	1		45,000	May 1896	.01
194	Prince Albert, g	Colo.	3,000,000	3,000,000	1				
195	Queen Bess Propr., s. l	B. Col	500,000	100,000	5		25,000	July 1899	.12½
196	Quicksilver, pref	Cal	4,300,000	43,000	100		1,845,411	May 1899	.50
197	Quincy, c	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb 1900	5.00
198	Rambler & Cariboo, s. l	B. Col	1,000,000	1,000,000	1		60,000	Dec 1893	.01
199	Raven, g	Colo.	1,500,000	1,000,000	1	50,000	119,500	May 1900	.01
200	Reco, s. l	B. Col	1,000,000	1,000,000	1		297,500	Jan 1898	.10
201	Republic Con., g	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar 1900	.01
202	Republic Iron & Steel, pf	U. S.	25,000,000	212,570	100	743,994	1,587,989	July 1900	1.75
203	Reward, g	Cal	1,000,000	100,000	10		20,000	Aug 1899	.20
204	Russell-Irwin, z	Mo	250,000	25,000	10		15,000	Oct 1859	.10
205	Sacramento, g	Utah.	5,000,000	1,000,000	5		138,000	Oct 1899	.00½
206	St. Joseph, l	Mo	3,000,000	300,000	10	37,500	2,934,500	Mar 1900	.50
207	Seventy-Six, g. s	Colo.	1,000,000	200,000	5		2,950	Mar 1898	.01
208	Santa Rosalia, g. s	Cal	100,000	100,000	1		135,000	Sept 1899	.05
209	Silver King, g. s. l	Utah.	300,000	150,000	20	375,000	2,825,000	May 1900	.50
210	Small Hopes, s	Colo.	5,000,000	250,000	20		3,325,000	Feb 1900	.10
211	Smuggler, s. l. z	Colo.	1,000,000	1,000,000	1	300,000	1,485,000	May 1900	.03
212	South Eureka, g	Cal	1,500,000	300,000	5		12,000	May 1898	.04
213	South Swansea, s. l	Utah.	150,000	150,000	1		165,000	Oct 1899	.05
214	Specimen, g	Colo.	1,200,000	1,200,000	1				
215	Squaw Mountain, g	Colo.	2,000,000	2,000,000	1		10,000	Nov 1899	.00½
216	Standard Con., g. s	Cal	2,000,000	200,000	10	40,000	3,939,226	May 1900	.10
217	Standard, g	Idaho	500,000	500,000	1		1,745,000	April 1899	.06
218	Stratton's Independ'ce	Colo.	5,500,000	1,000,000	5	960,000	1,920,000	June 1900	.48
219	Strong, g	Colo.	2,500,000	2,500,000	1	125,000	975,000	May 1900	.01
220	Swansea, s. l	Utah.	500,000	100,000	5	30,000	231,500	May 1900	.05
221	Tamarack, c	Mich.	1,500,000	60,000	25	300,000	6,570,000	June 1900	7.00
222	Tomboy, g	Colo.	1,500,000	300,000	5		812,000	Dec 1899	.24
223	Tornado, g	Colo.	1,000,000	1,000,000	1				
224	Touraine, g	Colo.	1,250,000	1,250,000	1	87,500	87,500	April 1900	.07
225	Union, g	Colo.	1,250,000	1,250,000	1		82,744	June 1896	.01
226	Union Leasing	Colo.	1,000,000	1,000,000	1		336,000	July 1895	.04
227	Union, z. l	Kas.	500,000	500,000	1	5,000	5,000	June 1900	.01
228	United, z. l., pref	Mo	6,000,000	240,000	25	12,720	15,395	April 1900	.50
229	United Verde, c	Ariz.	3,000,000	300,000	10	750,000	1,612,500	May 1900	.50
230	Utah, g	Utah.	1,000,000	100,000	10		179,000	Jan 1899	.02
231	Victor, g	Colo.	1,000,000	200,000	5		1,155,000	Dec 1898	.50
232	Vindicator, Con., g	Colo.	1,500,000	1,065,000	1	106,500	411,000	April 1900	.05
233	War Eagle Con., g. s. c	B. C.	2,000,000	1,750,000	1	52,500	545,250	Feb 1900	.01½
234	What Cheer, z	Mo	225,000	22,500	10	4,500	9,000	Feb 1900	.20
235	Wolverine, c	Mich.	1,500,000	60,000	25	120,000	390,000	April 1900	2.00
236	Work, g	Colo.	1,500,000	1,500,000	1				
237	Yellow Aster, g	Cal	1,000,000	100,000	10	100,000	423,789	May 1900	.20
238	Ymir, g	B. Col	1,000,000	125,000	5		30,000	Nov 1899	.24
239	Zenobia, g	Colo.	1,000,000	1,000,000	1		10,000	Feb 1893	.01

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to June 2d. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, ex-ship, N. Y.: Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30.00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01@.02
Italian, powdered	"	.01¼
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12½
German	lb.	.46
Boracic, cryst.	"	.10
Powdered	"	.10½
Carbolic, crude, 60%	gal.	.28
Cryst, 37%	lb.	.28
Liquid, 95%	gal.	.32
Carbonic, liquid	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.32
Powder	"	.32½
Alcohol—Grain	gal.	2.40
Refined wood, 95@97%	"	.75@.80
Purified	"	1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	"	.05
Sulphate, pure	"	.01½@.01¾
Com'l	"	.01¼@.013
Ammonia—Aqua, 16°	"	.03@.03¼
18°	"	.03¼@.03½
20°	"	.03½@.04
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09¼@.09½
Muriate, gran.	"	.06¾
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04½@.04¾
Red	"	.07¾@.08
Asphaltum—		
Ventura, Cal.	sh ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	lg. ton	30.00@35.00
San Valentino	"	15.00
Seyssel (French) mastic.	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1.	sh.ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
Am. Floated	"	14.50@17.50
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00@5.10
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	3.85
Bismuth—Oxide, hydr.	lb	2.25@2.30
Subnitrate	"	1.30@1.35
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	.03¾@.03½

	Cust. Meas.	Price.
Borax—Cryst. and pow'd	lb.	$ .07¼@.07½
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.40
Acetate, pure white	100 lbs.	1.00
Sulphate	"	2.00@2.50
Calcium—Acetate, gray.	"	1.50
brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.90
Best	"	1.00
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	.95
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.12
White	"	.14
Chalk—Lump, bulk	sh. ton	2.15
Precipitated	lb.	.04
Chlorine—Liquid	"	.28
Water	"	.15
Chrome Ore—		
(50% chrome) ex-ship	lg. ton	20.00@20.50
Sand	"	35.00
Bricks, f.o.b., Pittsburg.	M	175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ord.	sh. ton	4.00
Best	"	5.75
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide—Black	"	2.00
Gray	"	2.50
Smalt, blue ordinary	"	.20
Best	"	.30
Chem. pure	"	5.00
Copperas	100 lbs.	.67½@.72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.22½
Granulated	"	.22½
Powdered	"	.23½
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb.	keg	2.50
Blasting powder, B.	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.22
Glycerine for nitro (32 2-10° Be.)	"	.13¼
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—		
Am. lump, 1st grade	"	12.90
2d grade	"	12.40
Gravel & crushed, 1st g	"	11.90
2d grade	"	11.00
Ground, 1st grade	"	16.40
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Ganister Rock	lg. ton.	6.50
Graphite—		
Am. lump, f. o. b. Providence, R. I.	sh. ton	8.00
Am. pulv., f. o. b. Providence, R. I.	"	30.00
German, lump	lb.	.01¼
Pulverized	"	.02
Ceylon, pulv. common.	"	.04
Best	"	.06@.08
Italian, pulv.	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01¼
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06¼
Brown	"	.05¼
Nitrate, com'l	"	.06¼
gran	"	.8½
Lime—Com., ab. 250 lbs	bbl.	.60
Finishing	"	.70
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.00@7.50
Calcined (Greece)	sh. ton	16.50
Bricks (Greece)	M.	170.00
Bricks, Am., f.o.b. Pittsburg	M.	175.00

	Cust. Meas.	Price.
Magnesium—		
Carbonate, light, fine pd	lb.	$ .03¾
Blocks	"	.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Sulphate	"	.01@.01¼
Manganese—Crude, pow'd 70@75% binoxide	"	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
Manganese—Crude-pow'd 90@95% binoxide	"	.02¾@.05¼
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.24@.24½
Domestic	"	.30
Marble—Flour	sh. ton	5.50@6.00
Mercury—		
Bichloride	lb.	.74
Mica—N. Y. gr'nd, coarse	"	.04@.05
Fine	"	.06@.06½
Sheets, 1½x3 in.	"	.60
8x10 in.	"	13.00
Mineral Wool—		
Slag, ordinary	sh. ton	20.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.13@.13½
Oils—Black, reduced 29 gr.:		
25@30 cold test	gal.	.11@.11½
15, cold test	"	.12@.12½
Zero	"	.13@.14
Summer	"	.10½@.11
Cylinder, dark steam ref	"	.10@.15
Dark filtered	"	.13@.18
Light filtered	"	.16@.19
Extra cold test	"	.23@.28
Gasolene, 86° @90°	"	.16@.21
Naphtha, crude 68@72°	"	10.55
"Stove"	"	.13
Linseed, domestic raw	"	.64@.65
Boiled	"	.66@.67
Calcutta, raw	"	.76
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.09
Paints and Colors—		
Benzine, Sumatra	"	.35
Marbled	"	.27
Chrome green, common	"	.05
Extra	"	.10@.12
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.08
Calcined	"	.12@.20
Fine spirit	"	20@.35
Litharge, Am. powd.	"	.06½
English flake	"	.09½
Glassmakers, Foreign	"	.06½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¾@.02½
Orange mineral, Am.	"	.08¼@.08½
Foreign, as to make	"	.09½@.11¼
Paris green, pure, bulk	"	.12½
Red lead, American	"	.06½
Foreign	"	.08¼
Shellac, "D. C."	"	.27
Native	"	.14½
Turpentine, spirits	gal.	.50½@.51
Ultramarine, best	lb.	.25
Vermilion, Amer. lead, Quicksilver, bulk	"	.10@.11
Chinese	"	.72
English, imported	"	.88
English, domestic	"	.80
White lead, Am., dry	"	.74
In oil	"	.05¾
English	"	.06½
Whiting, common	100 lbs.	.06½@.08¾
Gilders	"	.42
Zinc white, Am., ex-dry	lb.	.04¾@.05¼
American, red seal, dry	"	.07¾@.07¾
Green seal	"	.07⅝@.08
Foreign, red seal, dry	"	.06¼@.08¼
Green seal, dry	"	.06¾@.08⅝
Foreign, in oil	"	.10¼@.11⅝
Potash—Caustic, ord.	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst.	"	.07¾
Powdered or gran.	"	.12
Bichromate	"	.08¾
Bromide	"	.46
Carbonate, calcined	"	.04¾
Com'l	"	.03¼
Chromate	"	.35
Cyanide (98@99%)	"	.28@.29
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.14
Prussiate, yellow	"	.18½@.19
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica),		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.00
Medium	"	1.75
Salt—		
N.Y. com. fine	sh. ton	2.00
N. Y. agricultural	"	1.50

	Cust. Meas.	Price.
Saltpeter—Crude	100 lbs.	$3.50
Refined	"	4.25
Samarskite	lb.	1.00
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Fire bricks (Blue Welch)	M.	35.00
Silver—Chloride	oz.	.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive	"	20.00
Sodium—Acetate, com'l	lb.	.04¾
Bichromate	"	.06¾@.06⅝
Bromide	"	.50
Chlorate, com'l	"	.09¼@.09½
Hyposulphite	100 lbs.	1.70@1.80
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.14¼
Triphosphate	"	.04
Silicate, conc	"	.03½
com'l	"	.02¼
Sulphate, gran., puri'd.	"	.03
Sulphide	"	.01¾
Sulphite	"	.02½
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.85
Flowers, sublimed	"	2.05
Talc—N. C, 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French	lg. ton	16.00
Italian	100 lbs.	1.50@2.00
Tin—Bichloride	lb.	.09¼@.10
Crystals	"	.22¾
Muriate, 36°	"	.09
Muriate, 52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	1.80@3.00
Zinc—Metallic, ch. pure	"	.09
Carbonate	"	.15
Chloride	"	.05¼
Dust	"	.07¼
Sulphate	"	.02@.02⅜

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5 71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.25
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium	kg.	1.90
Calcium	grm.	4.28@5.95
Cerium—Fused	grm.	1.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.26
Cobalt—(98@99%)	kg.	6.31@7.85
Pure	"	30.94
Didymium—Nitrate (N.Y.)	lb.	60.00
Erbium	grm.	3.09
Nitrate (N. Y.)	lb.	62.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.25
Indium	grm.	4.05
Iridium	"	1.43
Lanthanum—Powder	"	4.28
Electrol, in globules	"	9.04
Nitrate (N. Y.)	oz	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz	.60
Magnesium—In bars	kg	6.19
In wire	"	9.99
Powdered	"	5.71@6.90
Molybdenum—Fused	grm.	.20
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.95
Palladium—Wire	"	.95
Sponge	"	.71
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.62
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	33.32
Sublimed powder	"	42.84
Sticks	"	35.70
Silicium—Com'l	"	28.56
Pure crystals	"	59.50
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	119.00
Powder	"	95.20
Thallium	"	26.18
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	4.75
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.67
Purest, powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	lb.	62.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to May 19. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.